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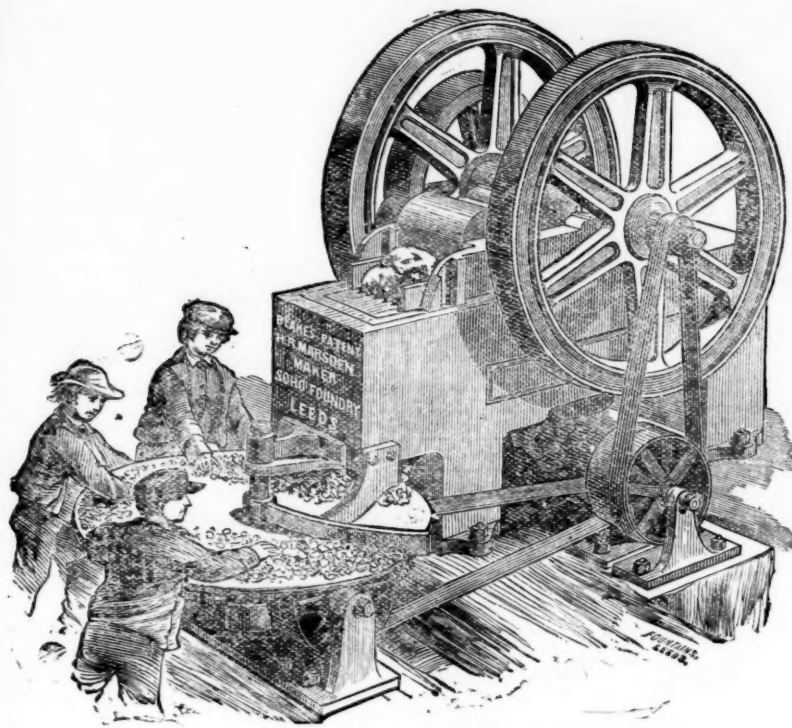
**BLAKE'S PATENT STONE BREAKER,**

OR ORE CRUSHING MACHINE,

FOR REDUCING TO SMALL FRAGMENTS ROCKS, ORES, AND MINERALS OF EVERY KIND.

This is the only machine that has proved a success. This machine was shown in full operation at the Royal Agricultural Society's Show at Manchester, and at the Highland Agricultural Society's Show at Edinburgh, where it broke 14 tons of the hardest trap or winstone in eight minutes, and was AWARDED TWO FIRST-CLASS SILVER MEDALS. It has also just received a SPECIAL GOLD MEDAL at Santiago, Chili.

It is rapidly making its way to all parts of the globe, being now in profitable use in California, Washoe, Lake Superior, Australia, Cuba, Chili, Brazil, and throughout the United States and England. Read extracts of testimonials:—



*The Parys Mines Company, Parys Mines, near Bangor, June 6.*—We have had one of your stone breakers in use during the last 12 months, and Capt. Morcom reports most favourably as to its capabilities of crushing the materials to the required size, and its great economy in doing away with manual labour.

For the Parys Mining Company, H. R. Marsden, Esq. JAMES WILLIAMS.

*Eaton Emery Works, Manchester.*—We have used Blake's patent stone breaker made by you, for the last 12 months, crushing emery, &c., and it has given every satisfaction. Some time after starting the machine a piece of the moveable jaws about 20 lbs. weight, chilled cast-iron, broke off, and was crushed in the jaws of the machine to the size fixed for crushing the emery.

THOS. GOLDSWORTHY & SONS, H. R. Marsden, Esq.

*Alkali Works, near Wednesbury.*—I at first thought the outlay too much for so simple an article, but now think it money well spent.

WELSH GOLD MINING COMPANY, Dolgelly.—The stone breaker does its work admirably, crushing the hardest stones and quartz. WM. DANIEL.

Our 15 by 7 in. machine has broken 4 tons of hard winstone in 20 minutes, for fine road metal, free from dust.

Messrs. ORD and MADDISON, Stone and Lime Merchants, Darlington.

*Kirkless Hall, near Wigan.*—Each of my machines breaks from 100 to 120 tons of limestone or ore per day (10 hours), at a saving of 4d. per ton.

JOHN LANCASTER, Ovoca, Ireland.—My crusher does its work most satisfactorily. It will break 10 tons of the hardest copper ore stone per hour.

General Fremont's Mines, California.—The 15 by 7 in. machine effects a saving of the labour of about 20 men, or \$75 per day. The high estimation in which we hold your invention is shown by the fact that Mr. Park has just ordered a third machine for this estate.

SILAS WILLIAMS, Your stone breaker gives us great satisfaction. We have broken 101 tons of Spanish pyrites with it in seven hours. EDWARD AARON, H. R. Marsden, Esq. Weston, near Runcorn.

For illustrated catalogue, circulars, and testimonials, apply to—

**H. R. MARSDEN, SOHO FOUNDRY,**  
MEADOW LANE, LEEDS,  
ONLY MAKER IN THE UNITED KINGDOM.

**TITANIC STEEL AND IRON COMPANY, LIMITED,**  
FOREST STEEL WORKS, COLEFORD, GLOUCESTERSHIRE,  
SOLE MANUFACTURERS OF

**MUSHET'S TITANIC BORER STEEL.**

R. MUSHET'S Special Steel for Lathe and Planing Tools (a new Steel which REQUIRES NO HARDENING after being forged); Mushet's Titanic Cast Steel for Taps and Dies, Lathe and Planing Tools, Drills, Punches, Chisels, Shear Blades, Hammers, &c., &c.

Double Shear Steel; Spring Steel; Blister Steel; Files.

**MINERS' HAMMERS AND MALLETS,**  
OF ALL DESCRIPTIONS.

LONDON: Mr. HENRY MUSHET, LOMBARD EXCHANGE, E.C. GLASGOW: Messrs. JOHN DOWNIE and CO., 1, ROYAL BANK PLACE. NEW YORK: Messrs. CHARLES CONGREVE and SON, 104 and 106, JOHN STREET.

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To the standard of any nation, Suitable for every purpose, of any power and dimensions.

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Contractors to Railways, Carriers, and others, for Maintaining Weighing Machinery.

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**PATENT SELF-INDICATING WEIGHING MACHINE.**  
Capable of WEIGHING TWELVE TUBS A MINUTE.

BICKFORD'S PATENT

FOR CONVEYING

CHARGE IN

Obtained the PRIZE MEDALS at the "ROYAL EXHIBITION" of 1861; at the "INTERNATIONAL EXHIBITION" of 1862, in London; at the "IMPERIAL EXPOSITION" held in Paris, in 1865; at the "INTERNATIONAL EXHIBITION" in Dublin, 1865; at the "UNIVERSAL EXPOSITION" in Paris, 1867; and at the "GREAT INDUSTRIAL EXHIBITION," at Altona, in 1869.



**BICKFORD, SMITH, AND CO.**  
of TUCKINGMILL, CORNWALL, MANUFACTURERS of PATENT SAFETY-FUSE, having been informed that the name of their firm has been attached to fuse not of their manufacture, beg to call the attention of the trade and public to the following announcement:—  
EVERY COIL of FUSE MANUFACTURED by them has TWO SEPARATE THREADS PASSING THROUGH the COLUMN of JUNPOWDER, and BICKFORD, SMITH, AND CO. CLAIM SUCH TWO SEPARATE THREADS as THEIR TRADE MARK.

**THE CORNWALL BLASTING POWDER COMPANY**

ST. ALLEN MILLS, TRURO.

Beg to call attention to their WARRANTED WATERPROOF SAFETY BLASTING CARTRIDGES, adapted for SUBMARINE BLASTING and USE IN WET GROUND GENERALLY.

Prices and samples on application.

G. COPELAND, JUN.,

MANUFACTURER OF THE IMPROVED

**PATENT SAFETY BLASTING CARTRIDGE**

FOR DRY OR WET GROUND;

ALSO OF THE

EMPTY CARTRIDGE CASES, IN SIZES TO ORDER.

ADDRESS,—CONSTANTINE, NEAR PENRYN.

**JOHN AND EDWIN WRIGHT**

PATENTERS.

(ESTABLISHED 1770.)

MANUFACTURERS OF EVERY DESCRIPTION OF IMPROVED

**PATENT FLAT AND ROUND WIRE ROPES**

From the very best quality of charcoal iron and steel wire.

**PATENT FLAT AND ROUND HEMP ROPES.**

SHIPS' RIGGING, SIGNAL AND FENCING STRAND, LIGHTNING CONDUCTORS, STEAM PLOUGH ROPES (made from Webster and Horsfall's patent steel wire), HEMP, FLAX, ENGINE YARN, COTTON WASTE, TARPULING, OIL SHEETS, BRATTICE CLOTHS, &c.

UNIVERSE WORKS, MILLWALL, POPLAR, LONDON.

UNIVERSE WORKS, GARRISON STREET, BIRMINGHAM.

CITY OFFICE No. 5, LEADENHALL STREET, LONDON, E.C.

**MARTYN AND CO'S SELF-ACTING BUDDLE**

(PATENTED).

LICENSES GRANTED by R. MARTYN, CLINTON VILLA, REDRUTH, CORNWALL.

**F. N. GIBBORNE'S PATENT MECHANICAL BALANCE-WEIGHT SIGNALS FOR MINES, &c.**

THESE SIGNALS supply a want long felt in giving INSTANT COMMUNICATION IN MINES at SEVERAL PLACES at the SAME TIME without the aid of electricity, but by a single rod or chain; so that a degree of safety is ensured hitherto unknown. The price is also very low, and the mechanism so simple that any ordinary mechanic could put it in order if out of adjustment. The same patent, as applied to ships, has received the approval of the Chief Engineer, Chatham Dockyard (vide *Times*, Aug. 18, 1868).

SOLE AGENT FOR MINERS: Mr. GEORGE B. JERRAM, ENGINEER, WASHINGTON BUILDINGS, BRUNSWICK STREET, LIVERPOOL.

N.B.—Mr. JERRAM is now visiting the different mines with working model.

**PATENT SELF-REGISTRATION COLLIERY WINDING INDICATOR.**

THIS INDICATOR, in addition to its ordinary use, INDICATES and REGISTERS the NUMBER of WINDINGS, thus enabling the Manager to check at a glance the returns of the Bankman or Clerk. PEPPER MILL BRASS FOUNDRY COMPANY, DARLINGTON STREET, WIGAN, MAKERS.

**THE PATENT SELF-ACTING MINERAL DRESSING MACHINE COMPANY (LIMITED).**

THE PATENT JIGGING MACHINE COMPANY.

T. CURRIE GREGORY, MINING ENGINEER.

OFFICES,—62, ST. VINCENT STREET, GLASGOW.

These companies possess the patents for the most approved machinery for all the processes of dressing ores, whereby a very great saving in cost is effected. The machinery is in successful operation at several mines in the kingdom, and is in increasing demand. Mr. GREGORY, in connection with skilled engineers in various mining districts, has paid for the last two years special attention to this important department of mining, and it is only now, the process being in successful operation, that the attention of the public is called thereto. Mr. GREGORY will be pleased to answer all enquiries, and give orders for inspection. He is prepared to give designs and estimates for the supply of machinery, and for the laying out of floors.

**PIT BAROMETERS—MINING INSTRUMENTS.**

JOHN DAVIS,

MANUFACTURER OF MINING AND SURVEYING INSTRUMENTS, DERBY.

MAKER (by appointment) of HEDLEY'S DIALS.

Price List on application.

STERNE'S PATENT PNEUMATIC SPRINGS FOR COAL CAGES.

Price £8 10s. per set of four.

**THOMAS TURTON AND SONS,**

MANUFACTURERS OF

CAST STEEL for PUNCHES, TAPS, and DIES, TURNING TOOLS, CHISELS, &amp;c.

CAST STEEL PISTON RODS, CRANK PINS, CON

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FORGINGS of EVERY DESCRIPTION.

DOUBLE SHEAR STEEL,

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SHEAF WORKS AND SPRING WORKS, SHEFFIELD.

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Where the largest stock of steel, files, tools, &amp;c., may be selected from

**MILNERS' STRONG HOLDFAST AND FIRE-RESISTING SAFES,**

STRONG ROOM DOORS, &amp;c.,

WITH ALL THE RECENT IMPROVEMENTS.

Price Lists, Drawings, and Testimonials free by post.

LIVERPOOL, MANCHESTER, SHEFFIELD, and 47A, MOORGATE

STREET, CITY, LONDON.

**BRITISH, COLONIAL, AND FOREIGN PATENTS,**  
REGISTRATION OF DESIGNS, COPYRIGHTS, TECHNICAL TRANSLATIONS, DRAWINGS, &c.  
MICHAEL HENRY,  
Mem. Soc. Arts, Assoc. Soc. Engineers, Compiler of the "Inventors' Almanac," and the Author of the "Defence of the Patent Law."  
PATENT REGISTRATION AND COPYRIGHT AGENT AND ADVISER.  
Mr. HENRY has had special experience in technical French, and in French Manufacturing and Commercial Matters.  
Inventors advised in relation to Patents and Inventive and Industrial Matters. Printed information sent free by post. Specifications drawn and revised, searches conducted. Abstracts, Cases, and Opinions drawn.  
Offices, 69, Fleet-street, E.C., London, corner of and entrance in Whitefriars Street.

Just published, price 1s., by post 1s. 1d.,

**HOW TO MAKE MONEY BY PATENTS:**

By CHARLES BARLOW.

London: BARLOW and CLARE, 23, Southampton-buildings, W.C.



# The Piel Hematite Iron Company

(LIMITED).

To be incorporated under the Limited Liability Act.

CAPITAL £100,000, IN 4000 SHARES OF £25 EACH

(With power to increase to £150,000 if necessary.)

A deposit of £5 per share to be paid on allotment. Subsequent calls at intervals of not less than two months, to the extent of seven-tenths of the entire capital—the remaining portion to form a reserve.

## DIRECTORS.

The Chevalier HARRY CLENCH, K.G.S., K.S.I., K.G.C., &c., &c., Norwich.  
Lieut. Col. H. RIGG, Cross Rigg Hall, Penrith.  
FRANCIS PARKER, Esq., Acorn Bank, Penrith.  
JOHN BEATSON, Esq., Iron Merchant, Sheffield.  
E. TALBOT, Esq.—MANAGING DIRECTOR.

BANKERS—THE LANCASTER BANKING COMPANY.

SOLICITORS—LAWRENCE HOLDEN, Esq., Lancaster.

Messrs. HANCOCK, SAUNDERS, AND HAWKSFORD, 36, Carey-street, Lincoln's Inn, London.

AUDITOR—H. C. BLOOE, Esq., Liverpool.

## SHAREBROKERS.

Messrs. H. BAZETT JONES AND SONS, Preston.

Messrs. RIDSDALE AND WAILES, Albion-street, Leeds.

Messrs. WOLFENDEN AND GELL, Corporation-street, Manchester. JARVIS W. BARBER, Esq., 40, Queen-street, Sheffield.

SECRETARY AND ACCOUNTANT—MARDON THOMAS, Esq.

The object in establishing this company is for the purpose of erecting furnaces and smelting the richer ores of Ireland in combination with the hematite ores of the Furness district. The annual produce of the latter cannot be less than 900,000 tons per annum, a large portion of which is sent out of the district, instead of being consumed therein, which can now be done with advantage and profit.

A site for the works has been selected in the vicinity of Piel (adjacent to the iron ore pits, and near to the large establishment of the Barrow Hematite Steel Company), which offers every facility for the successful development of the enterprise. The close proximity of the shipping port and extensive docks of Barrow, together with the harbour of Piel, will enable pig-iron to be dispatched, and the Irish ores to be received, with advantage to the concern.

Provision will be made in the Articles of Association by which mining property in the district, and other suitable localities, may be worked by the company. Leases of hematite property, embracing some hundreds of acres, in the Furness and other districts, are now under consideration, with a view to their being transferred to this company on advantageous terms.

A considerable portion of the capital has already been subscribed, and arrangements have been made with a gentleman (who will act as managing director), possessing long and valuable experience, by which every security will be afforded that the capital will be carefully and judiciously expended, and the subsequent working operations be conducted with caution and economy.

The company will be only incorporated under the Limited Liability Act, by which every shareholder is responsible only for the amount of his shares.

It is proposed to place the capital at £100,000, in shares of £25 each; to call up (say) £70,000 (in periodical payments, as may be required), and allow the remainder to form a reserve capital.

The cost of erection of three modern-built furnaces, with all requisite appendages, purchase of land, &c., will be £50,000, thus leaving of the called-up capital £20,000 as a working fund.

The cost of making iron will be about £2 12s. 6d. per ton, and the selling price

is now £3 per ton at existing works; so that upon a weekly output of (say) 1200 tons on the average (that is, after allowing for the variations of the Iron Market), from three furnaces, good profits will accrue to the proprietors, equivalent to a return, on the average, of 15 per cent. per annum.

The Furness Railway Company, whose main line passes the intended site, have kindly intimated their wish to render all possible assistance to the projected company.

The market for hematite pig-iron is now on the advance, and as it is the only class of iron employed in the Bessemer system, it is fully evident that a constant demand must exist, and continue to increase, for there can be no doubt, now that the Bessemer royalty has terminated, a great impetus will be given to this special branch of manufacture; its future requirements, therefore, will be very considerable, and as the production of hematite pig-iron must necessarily be restricted, it will be seen that a good and permanent prospect of success awaits this important section of the iron trade.

Applications for shares will also be received by the solicitors of the company, LAWRENCE HOLDEN, Esq., Lancaster; and Messrs. HANCOCK, SAUNDERS, AND HAWKSFORD, 36, Carey-street, Lincoln's Inn, London, from whom prospectuses can be obtained.

## FORM OF APPLICATION FOR SHARES.

To the directors of the Piel Hematite Iron Company (Limited).

GENTLEMEN,—I request that you will allot me shares in the above company, and on receipt of notice of such allotment, I will pay to the bankers of the company £5 per share as deposit; and I undertake to pay any future calls as they may become due. I further request that you will place my name on the Register of Members for the shares so allotted.

I am, Gentlemen,

Name.....

Residence.....

Occupation.....

## THE PIEL HEMATITE IRON COMPANY (LIMITED).

NOTICE IS HEREBY GIVEN, that the LIST OF APPLICATIONS FOR SHARES in the above company will be CLOSED on TUESDAY next, the 21st. instant, both for TOWN and COUNTRY.

## Bryn Llygwy Lead Mines Company

(LIMITED).

Incorporated under the Companies Acts, 1862 and 1867.

CAPITAL £25,000, IN 12,500 SHARES OF £2 EACH.

10s. per share payable on application, 10s. on allotment, and the remainder when required, but no call to exceed 10s. per share, nor at less intervals than three months.

## DIRECTORS.

GEORGE BRAND, Esq., Park-road, Twickenham.  
JOHN M. DAVIS, Esq., Renfrew House, Southsea.

WILLIAM WILDING, Esq., Montgomery.

(With power to add to their number.)

BANKERS—THE NORTH AND SOUTH WALES BANKING COMPANY, Liverpool, and Branches.

LONDON AGENTS—LONDON AND WESTMINSTER BANK, Lothbury, E.C.

BROKER—JOHN INCHBALD, Esq., 2, Copthall-court and Stock Exchange, E.C.

SOLICITOR—S. B. SOMERVILLE, Esq., 48, Lincoln's Inn-fields, W.C.

RESIDENT AGENT—Captain JOHN LEAN, Treloggen Mines, Holywell.

SECRETARY—GEO. H. CARDOZO.

OFFICES,—15, NEW BROAD STREET, LONDON, E.C.

## PROSPECTUS.

This company is formed for the purpose of purchasing and working the Penrith, Coed Mawr Pool, and Fridd Mines, in the lordship of Gwydir, near Llanrwst, comprising an area of upwards of 500 acres, traversed by several rich lodes, which have produced unusual quantities of lead ore from shallow workings, the deepest of which is not more than 25 fms. from the surface.

The mines are now drained by water-wheels, but an adit has been driven at a considerable cost for a distance of 50 fms. from the River Llygwy through the strata, at a depth of about 60 fms. This adit, when completed, will entirely unwater the mines, and will also intersect several lodes, from which it is anticipated great quantities of ore will be raised, and it will also prove a large north and south lode, on which it can be driven from the river to the intersection of the upper lodes, and become one outlet to the river.

The estimated further cost of completing this adit is under £2500, and an additional capital of £8000 is considered to be ample for working and making a dividend-paying property.

The landlords have agreed to grant leases of the strata on favourable terms at low royalties, and also to give valuable privileges in respect of timber required for the mines.

A contract, dated the 21st day of May, 1870, made between William Lefeaux

of the one part, and John Moore Davis, a trustee on behalf of the company of the other part, has been entered into for the sale of the leases, machinery, plant, &c., to this company for the sum of £4000 in cash, and £5000 of the company's shares, paid up in full. A copy of this contract can be seen at the company's offices.

Reports have been obtained from Captains John Kitto and John Nancarrow, both mining engineers of the highest respectability and standing, and they afford ample evidence of the unusually promising and rich mineral deposits in these mines.

The present prices of recently established Welsh lead mining companies prove the great success of these undertakings:—

	Amount paid.	Price, June 16.
Asheton .....	£5	£7 to £8
Tan-yr-Alit .....	3	4½ to 5
Van .....	4½	75 to 81

The property will be taken over, and operations commenced by the company as soon as a sufficient number of shares have been applied for.

Prospectuses, with the reports, and forms of application for shares, can be had of the Broker, or the Secretary, at the company's offices.

## ISSUE OF UNALLOTTED SHARES.

## South St. Just Tin Mining Company

(LIMITED).

Incorporated under the Companies Acts, 1862 and 1867.

CAPITAL £10,000, IN 5000 SHARES OF £2 EACH TO BE FULLY PAID-UP.

No further liability.

## DIRECTORS.

Major PATTERSON, Army and Navy Club, Pall Mall.

WILLIAM FREDERICK TRITTON, Esq., 20, Nicholas-lane, E.C. (East India Merchant).

Col. PAGET, Farnham, Surrey.

GEORGE BURSLEM, Esq., Whitehall Yard, S.W.

BANKERS—LONDON AND SOUTH-WESTERN BANK, Lombard-street, E.C., and Branches.

SOLICITOR—ROBERT WARD STACPOOLE, Esq., Pinners' Hall, Old Broad-street.

LOCAL PURSER—WILLIAM ANGIN, Esq., St. Just, Cornwall.

SECRETARY (pro tem.)—F. W. GRANT, Esq.

OFFICES,—225, GRESHAM HOUSE, OLD BROAD STREET, LONDON, E.C.

This company is established for purchasing the strata of, and machinery on, a mineral property situated in St. Just, Cornwall, and working a series of valuable tin lodes in a district long known and celebrated as one of the richest in the world, more especially for high quality tin ores.

The returns and profits from the mines in this district are so great as to almost surpass belief. Their position in the Dividend List is a sufficient guarantee for the present, and the prospects of the mines as they are being opened out warrant the assumption of a long-continued course of prosperity for the future.

The strata are very extensive, and have been granted at the unusually low royalty or dues of 1-24th for the term of 21 years, on the mining conditions generally adopted in Cornwall.

Their geological position cannot be surpassed, being in beautiful conical strata for tin and copper ores, in the granite near the junction with the hills. Intending investors, previous to applying for shares, may obtain an order to inspect the property, which is now in full operation, upon application at the office of the company, where prospectuses and every information may also be had, and specimens of the ores seen.

## Original Correspondence.

## ANOTHER "NOVELTY" FROM CARDIGANSHIRE.

SIR,—At Blaen Caelan Lead Mine the 8-horse power steam-engine I have had placed underground in end of adit, near the engine-shaft, was yesterday set to work with great success. This is the first steam-engine placed underground in any mine of this county. I believe that Capt. Waters, at Tankerville, has just started, or is about to start, one in the 70 fm. level of that valuable mine; while at Allt-y-Crib (Tal-y-bont) one is being fitted by Mr. Green for the Girdwood Company.

Although several mortifying delays—quite unexpected, and from unavoidable causes—have taken place, I am gratified to be able to state that Messrs. Durie and Davis, of the Aberystwyth Foundry, who had contracted to erect this engine, and attach drawing-machine and all other necessary appliances, have done their work admirably. The foundations of engine, boiler, and drawing-machine are very compact, in a space of 34 ft. by 12 ft., and 10 ft. high, cut out of solid rock at a depth of 150 ft. from surface; and the smoke, after first passing under the boiler through a brick flue, all laid in cement, is carried by a wrought-iron chimney-stack, 14 in. in diameter, up the shaft, to 12 ft. above surface. The engine went to its work with all possible ease, and it was remarkable to notice the slight check or strain which the attaching of the motions, one after the other, made to its working power: thus it was christened "The Little Wonder." This engine was manufactured by Sir J. Bunnet and Co., of Deptford, for the Castle Hotel of this town, but never erected, the boiler and connections being made by Messrs. Durie and Davis for the mine.

Yesterday was a red-letter day on the Blaen Caelan Mountain, and it is destined, I hope and believe, to be the forerunner of the establishment of a large and good paying mine here. The water will at once be got out of the 10 fm. level below adit, the workings cleared up, and a cross-cut level immediately started south from the end of the level, about 18 fms. east of shaft. There is a fine ore lode in the end. This cross-cut will open up an additional 10 fms. in height of ore ground, which, by the level and cross-cut above, we have already proved to be 35 fms. long by 5 fms. wide, and in less than a month we shall be in a position to sink this shaft another 10 fms. This is some compensation for the delay in appointment at not cutting the lode by the main or straight adit going north; however, as I have said before, it is only a fact delayed—and as the 25 east is extended on the same lode we get enlightened as to the cause of this delay. When the lode was dilled in February, by Capt. Kemp, of Broudford, the drafts taken proved an average bearing of 10° S. of E.; the level has since been advanced about 30 fms.; the bearing of the lode has varied many times during that length, but it seems now to have settled down to run from 15° to 20° N. of E., a difference of nearly 30° since the draft of its run in February. This will throw the lode much further north in advance of the adit end—and, in fact, the adit itself has been opened 27½ fms. since we resumed it on Feb. 14. I believe the extent of the workings in this mine since we started will compare very favourably with any other in the Principality, and for which dispatch great credit is due to the energy of the underground agent, Capt. John Evans.

Having now received approved working plans of the buildings for the 16-horse power horizontal engine, which is being made at the Perran Foundry (Sir Fredk. Williams and Co.), and having purchased a 40-ft. water-wheel, and entered into a contract with Messrs. Durie and Davis for a 36-in. crushed and drawing-machine, we shall proceed at once to erect the buildings, and, on their completion, to get our ore to market.

Aberystwyth, June 16.

[For remainder of Original Correspondence see this day's Supplement.]

## PNEUMATIC STAMPS.

For the convenience of gentlemen interested in mining operations a series of experiments are to be made at the works of Messrs. HARVEY and Co., Hayle Foundry Wharf, Nine Elms, in the course of a few days, with a view to demonstrate the advantages of the pneumatic stamps, which have been extensively introduced in Cornwall during the last 12 months. The feeling generally expressed is that considerably more work is done by the application of the same amount of power.

In the Pneumatic Stamp the motion is conveyed from the crank to cap and guide cross-head, on piston-rod, by an ordinary connecting-rod. Attached to its lower end is the piston-rod, and piston packed with double reverse cup-leather packings; the piston is 4½ in. diameter, and operates freely in the upper part of a gun-metal cylinder, 3½ ft. in length; attached to the bottom of this cylinder, by a socket in the usual manner, is the round stamp-head of chilled cast-iron, 9 inches diameter. The upper end of the cylinder is bored, to receive the piston, to a depth of 14 inches; the piston-rod plays air-tight through the cylinder cover, which is screwed metal to metal on the cylinder. The working barrel of cylinder is pierced with two sets of small holes, for the ingress and egress of air, discharging the air behind the piston after it has been once used as an elastic cushion. Suppose the head to be set in motion with the crank in a horizontal position, the piston being in the middle, vertically, of the working barrel of cylinder, and midway between the two sets of air-holes referred to. As the crank and attached piston rise, the air is compressed between the piston and cylinder cover, and the cylinder, with stamp-head attached, is forced upwards. When in rapid motion, the elasticity of the compressed air between the piston and cover flings the cylinder, with head, some inches above the range, due to the motion of the crank; on the descent of the piston below the bottom set of holes in the cylinder, the air is compressed in a similar manner, and the cylinder is forced down by the compressed air between the piston and cylinder bottom, until the stamp-head strikes the ore in a coffer-trough; thus, whether the quantity of ore be large or small, the blow is always effective, the only difference in the working of the machine being a shorter or longer vertical play of the cylinder and head.

The whole external arrangement for driving the head resembles a small vertical steam-engine, with a stamp-head attached to the cylinder bottom, with this difference, when in action the crank works the piston, and both piston and cylinder have a vertical play. The cylinder, as already stated, serves as a lifter for the stamp-head, and works in a deep guide, running across and uniting the side frames. Water is admitted into a chamber at the bottom of the guide, and escaping downwards, around the cylinder, into the coffer, prevents the pulverised ore from being forced between the guide and cylinder, keeping the rubbing surfaces clean in a very effective manner. The flow of the water also prevents the heating of the cylinder, which would otherwise result from the continual compression of air, and also supplies the necessary water for mixing with the ore in the coffer; grate-plates are fixed on each side, and extend the whole length of the coffer, giving an area of 250 square inches per head.

**LIQUID FUEL.**—Considerable interest is at present felt in the United States in connection with the substitution of liquid for solid fuel, in consequence of the success which has attended the invention of Messrs. WHIPPLE and DICKERSON, of Chicago. The distinctive peculiarity of this process consists in the evolution of hydro-carbon gas, which is conducted to the fire-box, and there burned from ordinary pipes, as in a gas stove. The process of evaporation is the chief feature of the discovery. Steam from the boiler passes through a pipe into the fire-box, where it is superheated in a small iron cylinder to a temperature of from 500° to 700°, or to even a greater temperature if desired; thence it passes through a pipe to a cylindrical generator, some 4 ft. high by 2½ ft. in diameter, containing 600 copper tubes of small size. The superheated steam passes through these tubes while the petroleum is contained in the spaces around them. The intense heat here, of course, volatilises the oil with great rapidity, and the gas passes into a receiver enclosing the generator, similarly to a water jacket. From this it rises through a layer of sponge, to equalise the pressure, into the dome of the machine, whence it passes into the fire-box of the boiler, and is consumed through an ordinary frame of burners with a force and heat far superior to any produced by coal. The practical application of petroleum as fuel was mentioned in last week's *Mining Journal*, and the value of petroleum, as compared with coal, was there carefully shown. Taking journeys amounting to 1250 miles in all, which have been performed without accident of any kind, the consumption of oil was 35 per cent. less by weight than that of good patent compressed coal. Each pound of fuel consumed evaporated 12 lbs. of water; than which a more satisfactory result could scarcely be hoped for. That the use of petroleum gas, and not of the petroleum in the ordinary condition, produces the best result appears to have been now established, and this opinion is in a measure confirmed by the excellent results obtained with natural petroleum gas under the boilers at the Erie Water Works. These are now heated solely by the flow of natural gas from the well recently sunk there. The gas is conducted by a 1½ in. pipe, without gasometer, through smaller pipes underneath the boilers. The flow has been steady, and less than one-half the amount has been necessary to keep up a pressure of 4½ lbs. of steam to the inch, the usual pressure required. No coal whatever has been used since its introduction, the cost it saves being from \$8 to \$10 per day. Thus far it has only been conducted into the fire space under the boilers, but pipes will be put in to conduct it directly into the flues. Besides the saving of coal, the item of cleanliness is one worth taking into consideration. There is no smoke, no dust, no ashes, and nothing to do except turn a faucet to either shut off all heat or put on full force in a twinkling. Added to the intrinsic value of this well, the success in finding gas has opened a new channel of prosperity, and several prospects and enterprises, wherein the cost of fuel is the great item of expense, and whereby it may be made almost nominal, are already afoot, and doubtless some of them will be pushed through a fair trial. It is now proposed to bore specially for gas, to be used in the manufacture of iron, from which considerable economy and improved quality are anticipated.

**MILK A PRESERVATIVE AGAINST LEAD POISONING.**—M. Didier-Jeu, a red-lead manufacturer, has discovered that the use of milk at his meals, which he has made obligatory on his workmen to the extent of one litre daily, preserves those employed in lead works free from any symptom of lead disease. He ventures for the truth and correctness of this communication.



## Meetings of Public Companies.

## GREAT WHEAL VOR MINING COMPANY.

The quarterly general meeting of the shareholders will be held on Wednesday. The profit and loss account for the three months ending March is as follows:—

Black tin sold, March	£5541	8	11
ditto April	3941	3	8
Tribute and royalty on tin sold from Roseladon, &c.	91	9	2
Half-year's rent of Trellisick Mill to Christmas, 1869.	7	10	0
One year's rent of Poldown tenement, Lady-day, 1870.	5	0	0
Old rope sold	14	2	0
Sundries sold and cash balances	6	10	3=
Mine cost	£4428	1	8
Merchants' bills	5017	6	7
Income tax on profits for the year 1870	304	1	5
Lord's dues	408	9	7
Sundry payments, including London expenses	281	12	10=
Leaving balance (profit)	£1479	12	4

The ground sunk and driven during the three months was 40 fms. 1 ft. 3 in.

## EBBW VALE STEEL, IRON, AND COAL COMPANY.

The meeting of shareholders is convened for Thursday next, when the following report from the directors will be presented:—

In issuing the balance-sheet for the year ended March 25, the directors have much pleasure in being able to state that the steady demand for railway iron which commenced last year has continued, and that looking to the enquiries, both for foreign and home account, there is every probability that for some time to come the orders for steel and iron rails will show no falling off. The coal and coke trades have been rather better for the past than for the previous year, but the great competition in these branches has rendered it impossible to secure a fair profit; still there are symptoms of improvement, and it may, therefore, be confidently expected that the profits earned this year from the above sources will be such as to give satisfaction to the shareholders. The balance-sheet shows a net profit of 111,298. 13. 3d., which, with a balance of 62,592. 2s. 5d., brought forward from last year, makes a total of 173,890. 15. 8d.; out of this sum (after deducting the interim dividend of 10s. per share, paid in November last) the directors recommend a dividend of 20s. per share, making a total of 30s. per share for the past year, free of income tax, and leaving 184,432. 13s. 7d. balance to be carried forward to next account. The directors have also to inform the shareholders that besides keeping the works and machinery in thoroughly good working order, they have expended the sum of 31,000l. in additional plant, all of which has been charged against revenue. It will be noticed, however, that the sum of 58,000l. has been expended for freehold mineral property. This purchase has been effected by the directors, as it ensures full possession of all mineral rights in the estate, and in addition saves at once (in dead rent, way-leave, &c.) a sum equal to rather more than 5 per cent. per annum on the amount of the purchase money. The directors have devoted their attention particularly to the improvement of the appliances for the manufacture of steel rails, and having found the present mill insufficient they determined to erect a new one. The new mill, calculated to turn out 30,000 tons per annum, which they hope will be completed in July next, and as this new mill joins the converting house great economy in labour will be effected during the year, on reference to last year's accounts, that the debentures which became due in August and October have been paid off, and the attention of the shareholders is called to the marked improvement in the financial position of the company's affairs. By comparing this year's accounts with those issued in 1868, it will be noticed that the sums due to creditors have been reduced from 487,775. 10s. 3d. to 372,386. 10s. 3d., thus showing that liabilities amounting to 115,389. 10s. 3d. have been discharged, which must be regarded as satisfactory. It will be noticed that during the year a sum of 11,589. 6s. 4d. has been realised from the doubtful debtors, whilst further important dividends on several of the estates in course of liquidation have since been received, and others are shortly expected, and it is still hoped that the sum of 99,197. 13s. 8d. reserved against these debts will be sufficient to meet any loss arising from this source.

## NERBUDDA COAL AND IRON COMPANY.

The tenth ordinary general meeting of shareholders was held at the London Tavern, on Wednesday, Mr. S. J. WILDE in the chair. Mr. H. HEATH (the secretary) read the notice convening the meeting. The report of the directors appeared in last week's Journal.

The CHAIRMAN said it was with great satisfaction that he met his fellow shareholders upon the present occasion, because the long-looked-for goal had been reached—the completion by the Great Indian Peninsula Railway Company of their line to Jubbulpore. There was now a line of railway opened within 12 miles of the company's collieries, whereas the last time he met the shareholders the nearest railway communication was at a distance of 300 miles in one direction, and about 90 miles in the other. The branch line from Jubbulpore up to the company's collieries had not yet been begun, but the Government were very anxious that it should be commenced, and there was no doubt the works would be soon put in hand, and at no cost to this company. Upon this point he would ask the secretary to read a letter which had been received from official sources.

The SECRETARY then read the subjoined communication:—  
“Referring to previous correspondence on the subject of connecting by rail the Nerbudda collieries with the Great Indian Peninsula Railway, ending with my letter No. 1295 B, dated Sept. 3, 1869, I am directed to request that the Government of Bombay will at once issue orders for the preparation of a project and estimate for a single line branch to the coal pits, keeping in view the wishes of the Secretary of State, that equal facilities shall be afforded to all the coal fields in the district. The works should be designed with the strictest attention to economy, and to enter a low speed, but on the standard gauge, so as to carry the weight of the present line. A general project and estimate, in an abstract form, with an estimate of the cost of the iron, commercially speaking, will be submitted. The Government of India will be glad to see the project and estimate, and will consider the propriety of the branch being carried out as a Government work, not necessarily under Government engineers, but so as to leave the ownership with the Government. This will secure a more complete and satisfactory control over the rates of charge on the branch, in respect to which differences of opinion might arise. If such a plan be adopted, the railway company might be employed to execute the work if thought expedient, and if desired by them. The consideration of this suggestion should not, however, be permitted to interfere with the earliest practical execution of the work, which the Government in Council regards as of much importance.”

The CHAIRMAN said the long delay in the completion of the railway had had a most injurious effect as regards the extension of their capital, for instead of an expenditure of 30,000l., as originally contemplated, it would be something like 80,000l., thus absorbing the capital proposed to be expended in the construction of iron works. Application had been made to Government for permission to have the obligations removed with regard to the construction of those works, and they had strong hopes the appeal would be attended with success. Since the formation of the company more precise information had been obtained as to the iron that could be made in India, and he thought it was now admitted on all hands that, irrespective of cost, the iron, commercially speaking, was a utter failure. Under any circumstances, they had five years before them before they were bound to make any iron, so that it was a matter that did not press for the moment. As to the coal, there was no question the demand in all parts of India would be enormous, far exceeding, he believed, the supplies that could be obtained. He thought, however, it was for the interest of shareholders that no question should be asked about the supply, or the price at which the company proposed to supply it; he thought it would be very much to the interest of shareholders that nothing should be said upon the subject to-day. Mr. Simpson had left the company's service, and the services of Mr. Adley, one of the directors, had been secured. Mr. Adley had been appointed their manager, and he (the CHAIRMAN) thought they had been most fortunate in having obtained such services. That appointment left a vacancy in the board, which it was not proposed at present to fill up. It was thought that vacancy should be kept open, in case any gentleman could be found whose connection with India might prove of service to the company. That, however, was more a shareholders' than a directors' question. He might mention that within the past few days an official, high up in the Indian Government, had applied to them for shares, and 1000 had been allotted to him at par. The directors deemed it to be an advantage to the company to get a hold in India among the officials. It was thought that their coal might be used for making gas, and steps had accordingly been taken to ascertain whether it was so or not. There were seams of Cannel coal, and being only 12 miles from Jubbulpore, which was a junction station between two lines, there was no doubt that gas works there would be extremely useful to the railway, and he hoped they would be able to supply coal for that purpose. He congratulated the shareholders upon the prospects of the company; and the directors were very large shareholders. He did not think the time was far distant when they would be able to say that they were earning a dividend. (Hear, hear.) Two wagons of coal had been sent to Bombay, where they knew it would have a fair trial. He might add that it was a very difficult thing to get coal fairly tested in India. English engineers, who had not been very long in India, had a strong prejudice in favour of English coal, and he need hardly say that the results of the experiments were much dependent upon the skill of those by whom the experiments were made. It was intended to test their coal with English coal that had been in India for a few months, so as to give it a thoroughly fair trial. He then moved that the report and balance-sheet be received and adopted.

Col. FRENCH seconded the motion.  
Mr. VICTOR (an engineer recently engaged upon the railways in India) stated that the land between Jubbulpore and the company's collieries was nearly flat. The line could probably be constructed for between 2000l. and 3000l. per mile. There was no doubt as to the quantity or the quality of the coal at the Nerbudda Collieries, the only thing required was a little skilful mining, under the supervision of such a person as that whom the directors had appointed as manager. The collieries ought to produce 2000 tons per month, but to do that the works must be extended. There were other seams of coal within 1½ mile of this company's fields. It was distinctly coal, but without going very deep it could not be worked to advantage. The seam was on edge, and he believed it had been worked on account of the Great Indian Peninsula Railway Company, but from what he had recently heard he believed it had proved a failure. For years the Nerbudda Coal Company could have no competitors.

Mr. VILLESBOISNET said that nothing could be more satisfactory than the statement of Mr. Victor; and he (Mr. Villesboisnet) would suggest that the means should be provided to enable the manager to put the collieries in a position to return 2500 tons per month, although it might necessitate a small call. He congratulated the meeting upon the full and satisfactory statement made by their Chairman, which could not fail to inspire the greatest confidence. As to the expenditure, although he urged the exercise of the greatest economy until they were in a dividend-paying condition, yet he felt assured that whatever

amount of remuneration the secretary received his services were not sufficiently remunerated. He congratulated the shareholders upon the present position of the company, and could only urge upon them not to sell their shares at the present price.

Mr. COPE said that the prosperity of the concern hinged upon the completion of the 12 miles of railway between Jubbulpore and the collieries. Directly this was made the company would be in a position to sell coals. He suggested that the matter should be brought under the notice of the Duke of Argyll. He also suggested that half-yearly meetings should be held.

The CHAIRMAN said that up to a certain time they did what they could to place the collieries in a position to supply coals equal to the demand, but at last they reduced their staff, and for the last two or three years every possible expenditure had been reduced. At the present time, however, a very fair demand could be supplied. They had always told the Great Indian Peninsula Railway Company that if they would enter into a contract before the line was finished, they would be able to supply all the coal they wanted directly it was required. No contract was made, and as far as he was concerned, he did not now feel inclined to incur any large expenditure until it was absolutely necessary—until, in other words, some contract had been entered into, because eventually they would be able to sell all the coals they could possibly raise. As to a call, he could not at present say whether they would require one or not—it depended much upon how soon they began to sell coal. If, however, a call was made, it would not exceed 6d. per share. As to the construction of the branch line from Jubbulpore to the mine, that was the only point upon which it might be said the board were not unanimous. Personally speaking, he was opposed to this company undertaking its construction; but he hoped the question would be left to the directors, who were large shareholders—far larger than their interest as directors. Application had already been made to the Duke of Argyll, showing the necessity of making the line. As to half-yearly meetings, they had not hitherto been held, simply on the ground of expense, but as soon as dividends were paid, such meetings would be held.

The motion adopting the report and balance-sheet was put and carried unanimously. The retiring directors were re-elected, and Messrs. Waddell and Co. were re-elected auditors.

A vote of thanks to the Chairman and directors terminated the proceedings.

## BRYNPOTIG MINING COMPANY.

An extraordinary meeting of shareholders was held at the London Tavern, on Monday, for the purpose of resolving, in the terms of the sixth and seventh clauses of this company's Articles of Association, that the capital of the company be increased by the creation and issue of additional shares.—Mr. JOB TAYLOR, J.P., in the chair.

The report of the manager (Capt. John Kitto) stated that notwithstanding the work for which the last increase of capital was called up had been fully accomplished, yet the result obtained had not been so satisfactory as he could desire, or even such as they had at that time the strongest reason to anticipate. The engine-shaft has been sunk to the 48, and the 36 driven east of the same, on the course of the lode, for upwards of 30 fms., through profitable ore ground for nearly the whole of that distance, varying from 12 to 25 cwt. of ore to the fathom; and judging from the productive nature of the lode in the driving of this (36) level, together with the fact of having raised such a large quantity of ore from above the 24, he very naturally expected that ground of the same productive quality would be found between the two levels, but in this he has been disappointed. Stopes have been commenced in the roof of the 36, with every prospect of the ore holding through to the 24, but they had not stopped many feet above the roof of the level before they got into a floor of bed of almost unproductive ground, which, although they have spent a considerable sum of money in proving it, has yielded little ore to value, and whereas they asked between 12 and 22 cwt. of ore per fathom, they have not between the 24 and 36, where they reasonably expected a much larger quantity from the increased length of ore ground in the latter level, they have not raised more than about 70 tons, but still there is nothing discouraging about this so far as the future of the mine is concerned, as poor floors of ground of this description are found in the very best mines. But this has unfortunately happened at a time when they were not prepared for it, and instead of having the proceeds of the anticipated sales of ore to enable them to proceed to the future development of the mine to an extent which they proposed to fully justify, they have to make another appeal to the shareholders for further capital. He would suggest, in order to place themselves beyond the probability of having to do so again, that 5000 new shares be issued at par to the present members of the company, and with this amount he is fully convinced the mine can be opened out and developed to an extent that will show beyond a doubt the merits and value of the property, and will undoubtedly place the same not only in a self-supporting but in a dividend-paying position. To show more fully the value of the mine, he stated that the manager, Mr. Kitto, would be glad to give 5000 new shares (or 5000 shares of the whole amount taken up, equal to one-tenth of the number proposed to be issued. The mine, plant, and machinery are all in excellent order, the latter is working very satisfactorily, and is equal in every respect to the requirements of the mine for a considerable time. Shareholders will do well to visit the property, and he would have great pleasure in showing them the works, and affording full information.

The CHAIRMAN said that the notice just read had informed the shareholders that the object of the present meeting was to raise additional capital. Probably shareholders would like to know the reason that had rendered this step necessary after the expenditure of the 30000l. which was called-up some time since. When that 30000l. was raised the mine was not provided with efficient machinery, and it was not deemed prudent to make any considerable expenditure on that account until the mine had been proved; so that, in reality, a considerable proportion of that additional capital had been expended in ascertaining that the mine really warranted the outlay. Encouraged by the length of ore ground passed over in the upper level, they had commenced the driving of the 48 ft. level, where good paying ground was met with, although they knew from the level above that the best ground was still before them. As an evidence of this, a winze had been sunk from the 36 in advance of the 48 ft. level end, where the lode was of considerably greater value than the present end in the 48, and discoveries had been made which did not show themselves in the upper level. The manager says that the appearance of the lode in the winze excited anything he had ever yet seen in the mine. That 3000l. was, therefore, asked for to enable them to sink the shaft to the 48, to prove the lode at that point, to prosecute the different levels, and to erect the man-engine, and the whole of that work had been done not only within the time computed, but the adverse balance had been reduced from 1800l. to 1300l. He had pointed out upon previous occasions that the mine possessed great mineral capabilities, for while the character of the lode improved in productiveness in depth in the hill there were “backs” of no mean mineral value. Some of the most material points in the mine, however, they had been unable to prosecute by reason of that want of capital—that was really their sole difficulty; and if the mine was to be prosecuted with that vigour which its proved merits most certainly warranted, the executive must have the means wherewith to carry out the necessary operations. The amount proposed to be raised was 50000l., but it was not thought probable it would be necessary to expend that amount, the more particularly if the present prospects should continue; but shareholders might rest assured that whatever amount was expended would be well repaid. He had no hesitation in saying that any shareholder who subscribed for the additional shares would not regret having done so. He might mention that one shareholder, after having personally examined the property probably often than the directors, had agreed to take a large proportion of the new shares proposed to be issued, while their manager had signified his intention of applying for an additional 500, and another party would apply for 1000, so that every share would be quickly absorbed. But, of course, if the meeting shall agree to increase the capital to the extent of 50000l., the shares would, in the first instance, be offered to the present shareholders; if they did not take them, not a day would pass before the whole would be absorbed.

Mr. MARSHALL asked if it were thought this 50000l. would be sufficient for all purposes if the present favourable prospects should fall off?—The CHAIRMAN said he did not for one moment expect they would require to expend the whole of the 50000l., a great deal depending upon what quantity of lead was turned out by the different points of operation. If the deeper levels, so far as explored, had turned out as much lead as did the level above, the directors would have no objection to a further offer of capital, but would have been able to recommend the declaration of a dividend.

Mr. C. A. POWELL asked if the winze from the 36 to the 48 continued of greater value than the 48 ft. level end?—Capt. KITTO said that recently the 48 ft. level end had improved in a greater ratio than the bottom of the winze from the 36 ft. level.

Mr. MARSHALL asked what would be paying ground?—Capt. KITTO said that the ground was so easy in its character that a lode yielding 10 cwt. to the ton would be a good one. The present value of the lode in the winze was at least 1½ ton per fathom.

The CHAIRMAN said that the lode in the 12 fathom level gave lead to the value of 4000l.

Mr. MARSHALL enquired the comparative depth of the Van Mine with the Brynpotig?—The CHAIRMAN said that the surface of the Van Mine was deeper than Brynpotig. The Brynpotig lode was the nearest known parallel to the Van Mine.

Mr. COPE said that since the Van Mine had been mentioned, it might not be out of place to remind the shareholders that Van, like Brynpotig, had decided upon raising additional capital—a step which all prudent men would regard as most judicious, and as it would release the revenue from expenditure on capital account, and at the same time enable the returns and dividends to be at once increased. As Brynpotig shareholders, he did not think they could follow a better example than that set by the Van Mining Company.

Mr. WILKIN said there would be no difficulty about the new shares, for if any of the shareholders were not disposed to take the proportion there was no one who would gladly take them. The great object of the directors was to keep the mine free from debt. The directors were by far the largest shareholders; and he need hardly say that they would continue to do everything to promote the permanent interests of the mine.

Resolutions were then passed to the effect:—That under clause 6 of the Company's Articles of Association the capital of the company be increased to 20,000l. by the creation of 5000 additional shares of 10s. each; that under clause 7 of the Company's Articles of Association such additional shares be offered at par to the present shareholders *pro rata* to their respective holdings, and that any of the said shares remaining unapplied for by the present proprietors on Friday, July 1, 1870, be disposed of by the directors in such manner as they may think most beneficial to the company; and that 10s. per share be payable upon the 5000 shares upon application, and that no further call be made without giving three months notice thereof.

A vote of thanks to the Chairman concluded the proceedings.

THE PROSPECTS OF SOUTH WHEAL CROFT.—At the meeting of the shareholders of this mine, on Monday, an interesting report upon the position and prospects of the mine was made by the manager (Mr. R. H. Boddy), in which he stated that during the last four months the agents have kept in view the diminution of the copper and the increase of tin in this mine, and, as far as possible, preparations have been made in anticipation of the necessity of returning the tin by the erection of stamps, both the increased quantity and improved quality justify their ordering the necessary machinery which will have to be erected and placed on the mine for that purpose. Towards this he has charged in the account a sum of 600l. With the exception of this sum, the costs

are the ordinary working costs and the merchants' bills. It must be, however, calculated that in the next account they will have to debit about 800l. on this head. It will be seen that the present balance on the books will, with the charge of 600l., about the same as at the last account, after the payment of the usual dividend of 10s. per share. This must be attributed to the increased quantity of tin, the better quality and better price, the copper being nearly exhausted. If this continues they will probably be enabled to continue to show the accounts in the cost-book in a favourable form, after charging all bills, which he will constantly do from time to time.

GEOLOGICAL EXCURSION.—The members of the Geologists' Association made an excursion on Saturday to Hampstead Heath, under the guidance of Prof. Morris and Messrs. S. R. Pattison and C. Evans. Starting from the Swiss Cottage, they crossed the Conduit Fields to Hampstead. On the way the position of the Midland Railway tunnel, excavated in the London clay, containing *Nautilus*, *Pholadomya*, and many other fossils, was pointed out; and resting on the rise of the hill, Prof. Morris explained the geological structure of the extensive district seen to the south and south-west. The sections of the middle Eocene, or Bagshot sands, by the sides of a new road near the Salmons' Orphan School, were examined, and the position of these sands forming a capping of the hill, and resting on the London clay, was explained by Mr. Pattison. The party then proceeded across the Heath to the Leg of Mutton pond at North End; here patches of the London clay, raised during some late drainage works, were seen, and specimens of a characteristic fossil (*Pectenulus decussatus*) of the Highgate zone of the London clay were obtained. From an adjacent hill, capped by the sands, Prof. Morris pointed out Harrow Hill, also capped with the Bagshot sands, and explained that this upper deposit must once have been continuous, and that the intervening valley had been formed by denudation. He also explained that the sand at the top of the hill was a water-bearing stratum, giving rise to several streams at the junction with the subjacent clay, and that numerous minor valleys, descending from the hill, had been formed by these streams; good examples of these valleys were seen at North End and at the Vale of Health, the pond at the latter spot forming the head waters of one of the branches of the Fleet. After the excursion Mr. C. Evans kindly invited the party to inspect his interesting and valuable collection of fossils, obtained from the immediate neighbourhood of Hampstead.

COPPER TRADE.—Messrs. J. Pitcairn-Campbell and Co. (Liverpool)—The copper market has acquired additional firmness since our last, Chili bars being 10s. to 15s. per ton dearer, and regulus 8s. to 14½d. per cwt. Both consumers, exporters, and speculators have been active, and the market is quiet. At quotations 67½, 15s. to 68½, 10s. for Chili bars, 71½, 10s. for Urmeneta ingots, 13s. 6d. regulus, and 14s. 9d. nominally for Corocoro Barilla. Business transacted during the fortnight, comprises on the spot here 970 tons regulus, at 67½, 10s. to 68½; 400 tons regulus, at 13s. 6d.; and 50 tons Urmeneta ingots, at 71½, 10s. To arrive here 232 tons bars, at 68½, 10s. to 69½, 10s., and 1210 tons regulus, at 13s. 6d. per unit. At Swansea 100 tons bars, at 67½, 15s. per ton. At the Swansea ticketing on the 7th inst., 2500 tons ore sold average produce 13½-16½ per cent., average price 12s. 7d. per unit. About 2000 tons Moravia and Italian ore sold by private treaty, at 13s. to 13d. 3d. per unit. Arrivals here during the fortnight from West Coast, S.A.—Polestar, from Valparaiso, with 60 tons regulus and 22 tons bars; Santa Lucia, from Tome, with 45 tons bars. At Swansea—Zehlma, from Carrizal, with 60 tons regulus. Stocks of copper (Chilian and Bolivian) in first and second hands, likely to be available, are—

	Ores.	Regulus.	Bars.	Ingots.	Barilla.
Liverpool	1125	3085	9660	1094	129
Swansea	2886	7280	870	192	242
Total	4011	10365	10630	1246	363

Representing about 17,500 tons fine copper, against 11,600 tons fine copper June 15, 1869; 7500 tons June 15, 1868; 9600 tons June 15, 1867.

Messrs. Vivian, Younger, and Bond.—The market for copper has become stronger during the week, and holders have in some cases secured a trifling advance on our last week's quotations. Certainly the tendency is just now towards higher prices, but buyers say there does not appear to them to be any special reason for it, therefore, they act with the greatest caution. On the other hand, importers are convinced that the stocks returned in the official lists as lying at the warehouses in England and at Havre are the only stocks, and that consumers are not well supplied. They also are advised to expect moderate shipments from Chili, and so they do not offer their copper, therefore the market will only have to pay a premium to pay a premium to pay a premium. We have to report transactions in bars of 650 tons, at about 67½, 15s. for Urmeneta and Lota; 68½, cash, and 69½, three months, for good ordinary brands; 68½, 10s. cash, and 69½, three months, for best brands. In regulus three cargoes (in all 1500 tons) have been done at 13s. 6d., part each Swansea and Liverpool. Manufactured continues dull. English raw copper is in good enquiry, and smelters ask 20s. 3d. advance on their official quotations. Fine foreign has been dull at our quotations, but there are at the close signs of more activity.

Messrs. James and Shakspeare.—About 1300 tons regulus for Liverpool have been purchased by the smelters there at 13s. 6d., per unit, and at the present moment it would not be easy to find sellers to any large extent, even at that comparatively high rate, either for delivery in that port or Swansea. In bars about 600 tons per purchased at 67½, 12s. 6d., and 67½, 10s. for Urmeneta and Lota, 68½, to 68½, 10s. for other marks on the spot, whilst 68½, 10s. for J. Edwards to arrive, and 68½, 10s. to 69½, 10s. given for good ordinary brands, with extended prompts ranging from six weeks to three months. This description of copper continues to have a strong upward tendency, and as importers appear to be fully imbued with the belief that the falling off in supplies from Chili is likely to continue, they are unwilling to sell freely at present rates, and by their almost total withdrawal from the market, induce speculative holders, both in England and France, to follow in their footsteps; therefore, even when a stock of fully 11,000 tons in Liverpool and Swansea, and 6000 tons in Havre, buyers can only secure a trifling percentage at the nominal market rates, and a purchase of 200 to 300 tons now creates more effect on prices than did the buying of 1000 to 1500 tons some few months back. Consumers seem utterly perplexed how to act, they dare not appear as free buyers lest the raw material should go higher in proportion to the manufactured article than it has at present; nor will they book large orders for their own goods, fearing they should be unable to cover themselves except at a loss. The questions of the moment are, how long will this state of decline last? and will the enigma, the result is that the trade is left in a most unsatisfactory condition for all parties. There has been more enquiry for Australian during the present week, and all parcels to be had at 78½, whether Wallaroo or Burra, have been cleared off the market; the transactions in all amount to about 200 tons. Smelters are holding tough for an advance of 20s. to 40s. per ton over their official quotations, and some of them are indisposed to sell manufacturers at the list rates; but there is not much enquiry for the latter sort, Indian orders being still at too low a limit to permit of execution.

## [ADVERTISEMENT.]

## LEAD MINING AS AN INVESTMENT.

Messrs. LISCOMBE and Co., who have had nearly twenty years' experience in mining in Cornwall and Wales, are now in a position to recommend to their clients and the public investments in Lead Mines in Wales, at once devoid of risk, and yet which are certain of returning large and immediate profits. The great value of lead mining in Wales has long been known to the initiated; for from the time of Sir Hugh Middleton (who, from the great profits realised from his Welsh lead mines was enabled to bring the New River to London) to the present day, when the Right Honourable John Bright, M.P., the Right Honourable Milner Gibson (late M.P. for Manchester), and the late Mr. Cobden, M.P., realised their great fortunes out of their Montgomeryshire lead mines, Welsh mining has been the most successful and profitable of British pursuits. It is only, however, within the last three or four years that the public have come to appreciate the importance and unparalleled profitable nature of this industry. The Van Mine, which, scarcely more than a year ago, was purchased for little over 30,000l., is now selling in the London market for upwards of a million sterling; and the statistics which Messrs. LISCOMBE and Co. are prepared to supply show that upwards of two millions sterling profits have been realised from Welsh lead mines during the last eighteen months.

Among the most important of existing mining enterprises in Wales are the ABERDEVER LEAD MINES, situated in the heart of the lead region of the Principality, equidistant from the Van Mine, the Lisburne Mines, and the Carnarvonshire Mines. Shares in the Aberdover Lead Mines, which have made large returns and profits, and which are supplied with a full plant of machinery and materials, are now purchasable at 12½. If the mines should be worked with success similar to that which has attended the Van Mine, shares will, within a year, be selling at over 50l.—a result which Messrs. LISCOMBE confidently anticipate.—For further information, apply to Messrs. LISCOMBE and Co., 37, South Castle-street, Liverpool.

## [ADVERTISEMENT.]

From Mr. JAMES CROFTS:—Another advance in the Tin Standard has given a fresh impetus to tin mines, and served to strengthen the already high prices obtained for most shares, especially those in the leading mines. The prospects of the tin miner are very brilliant, for there seems every probability of a high range of prices being sustained for some time to come. Copper, on the other hand, is dull, and the prospects of copper mines not very cheering. A rise, however, may surely be looked for ere long to cheer the spirits of the copper mining community.

EAST LOVELL have remained firm, at 34½, and close with an upward tendency. A rise of 6d. to 7d. per share occurred in COOK'S KITCHEN, and the shares were bought at 25d. During the week, however, a good deal of the advance has been lost, and shares are now 19½ to 21½. The mine is turning out very rich. TINCROFT (the adjoining property) have now reached a splendid price, and the mine is looking excellent. WHEAL BARRET, 90l. to 100l. These shares should be bought, as the mine promises to become very soon a most important property. GREAT VOR are flat, at 9½, 10½, and will apparently go lower. Returns have lately shown a falling off, and the expenses are very heavy. SOUTH CONDBURROW promises well. Shares firm at 31. to 32. 10s. NEW LOVELL, 2½ to 2½, good. The present is a particularly favourable time for investments in moderate priced tin mines, possessing good chances of success, and several could be mentioned which are on the eve of important advances. Of course, discrimination is necessary, and an all-important item is the soundness of the financial condition of the property in which the investor is interested. At GREAT ROYALTON, about a fortnight's time will see the steam engine and stamps set to work. A report received on Thursday announces a discovery in the new whin-shaft, where a rich tin lode has been cut. This will be a very important property, and the shares are very cheap, and well worth the attention of the investor. At ROUCHE CONSOLS, the adjoining mine, the middle lode has greatly improved in size and value, and is yielding rich Devon stuff. This is another mine that should be sought after. The lode of DEVON CONSOLS, once the great luminary of the mining market, has been sadly dimmed of late. The shares are flat, at 110l. The prospects cannot be said to be cheering, for lately no discovery of any importance have been made, and the reserves of ore are being reduced. Added to this, the present low price of copper



precludes the hope of any material change in the shares. As the price of tin is to Great Vor, so the price of copper is to Devon Consols. Low quotations mean low dividends. WEST CHIVERTON are firm, at 55s. to 56s. HERODSFOT are lower, and quoted 39s. to 41s. TANKERVILLE are slowly advancing, and VAN appear likely to attain a much higher price in the course of the next two months.

**EBERHARDT AND AURORA.**—The special report from Mr. Thos. Philpotts states that the ores in these mines are rich, extensive, and valuable, and if properly selected, you may reckon on an average assay value of (at the very lowest computation) \$40 to the ton, probably a much higher one. With certainty an output of at least 80 tons a day, or 24,000 tons a year, and double this quantity if necessary, may be reckoned upon. To reduce the cost of hauling, it would be advisable to construct a tramroad from the mines to a spot in the Eberhardt Valley, where two new mills, of 20 stamps each, capable of crushing 80 tons a day, should be at once erected. There is sufficient water for the supply of these mills obtainable from the Applegarth springs, from which a connection with the mills can readily be made. The cost of the works may be estimated at \$2,000. The extraction of the ore, which is a chloride of silver, resembles quarrying rather than mining, and varies much in quality and richness, the assay value being in some cases \$900, and in others only \$25 to the ton. Labour is sufficiently plentiful, but wages and the prices of materials high, which is not surprising, considering the distance and its distance (120 miles) from the nearest railway station (Elko). These mines have only been discovered and working during the last two years. The present proprietors have extracted a large quantity of very rich ore from some of the pipes. And if advantage be taken of the summer weather, they can be all complete and ready for use in five months time. The cost of management of both properties, including mines, mills, labour, material, transport, hauling, taxes, salaries, and all charges, should be amply covered by \$20 a ton, if not less, so that taking the average assay value to be only \$40 a ton, there would be a profit of \$20 on 24,000 tons in the year, or \$96,000. He has, therefore, no hesitation in stating that the properties are not only well worth \$20,000, but will be a remarkably cheap purchase; and, with ordinary care and management, must yield a very handsome return.

## MINING NOTABILIA.

[EXTRACTS FROM OUR MINING CORRESPONDENCE.]

A telegram was received yesterday afternoon from the agent of EAST WHEEL GRENVILLE, stating that the 45 ft. level east had further improved to 2½ tons of copper ore per fathom. The present value of various places in the mine is as follows:—The 45 east is worth 2½ tons per fathom; the 55 east is worth 5 tons per fathom; the 65 east is worth 5 tons; No. 2, 2½ tons; No. 3, 2 tons per fathom; the 75 east, 1½ ton per fathom; and the 95 east, 1½ ton per fathom.

**BOTALACK MINE** has just sold tin ore at 86s. 5s. per ton; and Great Work Mine at 88s. Uranium has been found at Treilon Consols Mine. The uranium found at Wheal Owles fetched 50s. per ton.

A discovery of tin at NORTH POOL MINE in the 24 fathom level has taken place.

**PACIFIC.**—Most important advices were received on Monday from one of the mines belonging to this company—the Lander Hill. The intelligence received, I am informed, fully confirms all previous reports as to the improving extraordinary richness of the mine, and leaves no doubt that the returns will soon place the Pacific Mining Company at the head and front of foreign dividend-paying mines.

**EXCELSIOR (Tin and Copper).**—A great improvement has taken place in this mine during the past week on Thorne's lode, which at a depth of 8 fathoms is producing excellent tinstuff. This mine promises to satisfy the most sanguine expectations of its proprietors, and great results are expected on cutting the lode in the deep adit, now being vigorously driven.

The famed district of Callington has lately seen another mine commencing operations; they intend calling it "THE LADY ASHBURTON," after the noble lady the owner of the property. This is considered one of the best pieces of metal ground about there, having three silver-bearing lodes in the set, besides tin, copper, and silver-lead. They have brought up an open cutting of about 70 fathoms from the south-eastern boundary of the set, and will very soon intersect one of their rich lodes. The intention is then to drive west on the course of the lode, and in a few months back of 20 fms. could be obtained, but valuable mineral is expected to be got all the way. It is the intention also to continue another 10 fathoms will bring it home upon what is known as the Bremer's lode, and by still carrying it further north will intersect other valuable lodes, and gain back of 50 fathoms upon them, thereby rendering machinery unnecessary. The ore to be obtained it is supposed will be very rich. An improvement has taken place in the quality of the ore raising at the Prince of Wales Mine, silver beginning to show itself in the produce. It is also reported that the old Silver Valley Mine (whose lodes are unworked in the Lady Ashburton) is about to be started again.

**TERRAS (Tin)** is one of the greatest successes ever discovered in Cornwall. The tin is found in the clivan up to the surface, and improving in depth. The whole of the stuff is being quarried and stamped out. The yield of tin is extraordinary. They promise to sell 5 tons of tin within a fortnight. If so, it will astonish the proprietors of some of our oldest tin mines in Cornwall.

**LEEDS AND ST. AUBYN.**—This mine is likely to take a good position amongst the tin mines of Cornwall. It is being worked with vigour, and in a few days some very important points will be reached. From two lodes the present adventurers have sold 50,000 lbs. worth of tin, and in a short time these lodes will be proved again. The shares are at a low price, and in a small number, and it is not improbable they will see a very different quotation. Mr. P. R. Wilson, of 20, St. Helen's-place, has been appointed secretary, and a considerable interest in the mine has been acquired for his friends.

**PIEL HEMATITE IRON COMPANY.**—In a concern like the one projected the risk is nil. Bessemer pig-iron can only be made from hematite ore, and, as these are only thinly distributed throughout Great Britain, the Furness district may be said to possess the main, indeed almost exclusive, portion of this deposit—witness the great Barrow establishment, with 11 furnaces going, and consuming some 9000 tons of hematite ore weekly. The district, however, produces some 20,000 tons per week, a good part of which is sent into South Wales and other places, which is not surprising, considering the distance, and I will guarantee that upon every ton of hematite pig-iron made by the Piel Company at present prices a profit of 10s. to 12s. 6d. per ton would result, were the furnaces now at work. The demand for Bessemer pig-iron since the expiration of licence (as I had always predicted) has increased enormously, and must continue to do so.

**EAST LOVELL.**—According to the report of one of the most eminent practical authorities in Cornwall, who inspected this mine on Wednesday, the engine-shaft is sunk to the 80, and the level driven west about 13 fms. This lode has been won from 200 ft. to 400 ft. per fathom, but in the present end it is not looking so well, being worth 100s. per fm., and from its appearance he thinks it will further decline in value shortly. The winze is not being sunk below this point. Those familiar with the previous history of this mine are enquiring the reason that neither the winze nor the shaft is being sunk below the 80 ft. level. It is argued that if at least neither of these points are continued the present large extraction of ore cannot be long maintained.

## PRICES OF MATERIALS.

As charged at the GREAT WHEEL VOR MINES during the following months:—

Description.	Jan.	Feb.	March.
Coals, common.....per ton	12s. 0d.	12s. 0d.	12s. 0d.
Ditto, best.....per ton	16 8-18	16 8-18	16 8-18
Iron, common.....per cwt.	9 0	9 0	9 0
Ditto, best.....per cwt.	11 0	11 0	11 0
Steel, cast and blister.....per cwt.	45 0	45 0	45 0
Nails, 5 and 6 in. patent.....per 100	17 0	17 0	17 0
Tallow.....per cwt.	50 6	49 6	49 6
Grease.....per cwt.	9 6	9 6	9 6
Oil, olive.....per gal.	5 3	5 3	5 3
Gaudies.....per doz.	2 3	2 3	2 3
Hills, pick.....per 100 lbs.	33 0	33 0	33 0
Peas, broad.....per lb.	2 4	2 4	2 4
Ditto, butt.....per 100	1 9	1 10	1 9
White yarn.....per 5½	0 5½	0 5½	0 5½
Hemp.....per 5½	0 5	0 5	0 5
Timber, Norway.....per 50 feet	34 10	34 10	34 10
Ditto, pine.....per foot	1 6	1 6	1 6
Ditto, oak.....per 2	2 6	2 6	2 6
Ditto, Baltic.....per 2	2 2	2 2	2 2-3
Ditto, birch and elm.....per 2	2 2	2 2	2 2-3
Ditto, battens.....per 2	0 2½	0 2½	0 2½
Ditto, Dantzke.....per 2	1 9	1 9	1 9
Ditto, pitch pine.....per 2	1 6	1 6	1 6
Rope.....per cwt.	42 0	42 0	42 0
Stamp heads, Longshanks.....per 100	34-37	34-37	34 0
Cartridges.....per 100	34-37	34-37	34 0
Safety fuse.....per coil	0 6	0 6	0 6
Wire rope.....per cwt.	60 0	60 0	60 0

**CORNISH MINE SHARE MARKET.**—A comparatively quiet week has been experienced in the Cornish Mine Share Market, and, as is generally the case whenever business through any cause assumes a restrictive tendency, prices of most of the ruling stocks are quoted a shade easier. The tin market also does not appear quite so firm as it was a week ago.—West Briton

The Bank of England return for the week ending on Wednesday evening shows in the ISSUES DEPARTMENT an increase in the "notes issued" of 218,000l., which is represented by a corresponding increase in the coin and bullion on the other side of the account. In the BANKING DEPARTMENT there was an increase in the "public deposits" of 450,571l., in the "other deposits" of 1,376,457l., and in the "rest" of 17,123l.; together, 1,743,151l., and a decrease in the "seven day and other bills" of 23,942l.,—1,719,209l. On the other side of the account there was a decrease in the "Government securities" of 129,661l., and an increase in the "other securities" of 1,195,936l.,—1,194,644l., leaving a total increase in the reserve of 524,569l.

**HOLLOWAY'S OINTMENT AND PILLS.**—PIMPLES, BOILS, CARBUNCLES, &c.—These maladies arise from some obstruction to the free circulation of the blood through the blood-vessels or lymph through the capillaries, and the only rational mode of cure is in removing the local impediment, at the same time that any irritation engendered by the stoppage should be filtered from the blood. Holloway's ointment applied to the part effects the first, his Pills accomplish the latter object. The inflamed skin derives softness, coolness, and ease from the application of this unguent, which gradually penetrates to the affected tissues, arrests inflammation, assuages irritation, soon restores the circulation and its channels to a healthy condition, and spares the sufferer most serious diseases and unnecessary suffering.

## FOREIGN MINES.

**ALAMILLOS.**—June 8: In the 5th level, east of San Rafael shaft, there is a very good shoot of ore, yielding 2 tons per fathom. In the 10th level, west of this shaft, the lode is divided into branches, and contains good stones of lead. The lode in the 4th level, east of La Magdalena shaft, is larger and easier for driving than for some time past. In the 5th level, east of La Magdalena shaft, the ground is very hard, and the lode small. In the 6th level, east of Taylor's engine-shaft, the lode is open, and letting out much water, and is of a very kindly appearance. The lode in the 6th level, west of Taylor's engine-shaft, produces occasional stones of ore. The 5th level, west of San Andriano shaft, will soon get under a point of view which being under the 2d level, west of San Victor shaft, the lode is large, yielding ½ ton per fathom. The 4th level, west of the same, is quite unproductive. The lode in the 2d level, west of Cox's shaft, is again improving, and now yields 1 ton per fathom. The 2d level, east of San Victor shaft, is being driven to meet the last-named end, and is opening ore ground very fast; the lode yields 1 ton per fathom. In the 3d level, east of San Victor shaft, the lode is greatly disarranged. The lode in the 3d level, east of San Victor cross-cut, is like the last named in contact with the main lode. The 3d level, west of the same cross-cut, will soon get under a point of view which being under the 2d level, west of San Victor shaft, the lode is large, yielding ½ ton per fathom. The 2d level, east of San Carlos shaft, is laying open a very good run of ore ground, the lode here produces 1½ ton per fathom. We have commenced driving the 2d level, west of San Carlos shaft, in which the lode has a promising appearance, and yields ½ ton per fathom. In the 3d level, east of Crosby's shaft, we have met with a slide. In the 3d level, west of Crosby's cross-cut, the lode is at present very small, yielding ¼ ton per fathom. The 2d level, west of the same, is also off the lode, and is being sunk with good dispatch. The 2d level, west of the lode although not so good as it was is opening fairly productive tribute ground, and is worth ¾ ton per fathom.—Shafts and Winzes: In Taylor's engine-shaft, under the 6th level, the men are making moderate progress. In Henty's shaft, under the 2d level, the lode is split into branches, and is yielding ¼ ton per fathom. San Enrique shaft, under the 4th level, is off the lode, and the men are getting it down at a moderate rate. San Xajo shaft, under the 3d level, is also off the lode, and is being sunk with good dispatch. Victor's winze, below the 1st level, is in old works, with good branches of lead standing at the side of them. Adida's shaft is deep enough for the 2d level, and the men are put to cross-cut to the lode. The tribute department yielded the full complement of mineral in the past month, and the stopes remain without any unusual variation. The surface works are going on regularly, and the machinery is in excellent condition. We estimate the raisings for June at 275 tons.

**FORTUNA.**—June 8: Canada Inco's. In the 120 cross-cut north the ground is exceedingly hard for driving. The men are getting on badly with the 110, west of O'Shea's shaft. In the 110, east of O'Shea's shaft, the lode is small and unproductive, and the ground hard for driving. In the 100, west of Henty's shaft, the lode is small, but looking more promising than it has been, yielding ¾ ton per fathom. In the 90, west of Judd's shaft, the lode is small and unproductive. The lode in the 80, west of Judd's shaft, being small and poor the driving is suspended. The 80 cross-cut, south of Henty's shaft, is being driven with moderate speed. The lode in the 50, east of San Pedro shaft, contains good stones of lead, and yields ½ ton per fathom. In the 30, east of Swaffield's shaft, is producing ¾ ton per fathom, and letting out water; it yields ½ ton per fathom. In the 20, west of Lowndes' shaft, the lode is improved and opens good tribute ground, worth 1½ ton per fathom. In the 10, east of ditto, the lode is small, hard, and poor. The 70, east of Carro's shaft, is opening moderate tribute ground; the lode is worth 1 ton per fathom.—Shafts and Winzes: In San Pedro shaft, under the 50, the men are getting on well with the sinking. Good progress has been made during the past month in Santo Tomas shaft, below the 55. Segura's winze is going down well; the lode is small at present, yielding ¾ ton per fathom. The sinking of the 100 fathoms shaft, under the 100, has been interrupted by the men giving up their bargains in the middle of the month; the lode yields 1 ton per fathom. Salina's winze is deep enough for the 95, and will be holed shortly; it contains a lode worth 1½ ton per fathom. In Nieto's winze, below the 75, the lode is unproductive. Topotes' winze, under the 90, is going down in a very kindly lode, yielding 1½ ton per fathom. The weekly weighings of ore were kept up very regularly in the past month, and the stopes are looking much as usual at present, enabling us to estimate the raisings for June at 332 tons. The machinery is in good working order, and the surface operations go on very regularly.

**LINARES.**—June 8: West of Engine-Shaft: In the 85, west of Warne's engine-shaft, the lode is disarranged, containing occasional stones of lead, but of no value. The 75, west of Crosby's engine-shaft, has passed through a strong cross-joint, which left the lode very poor. In the 65 west of Francisco shaft, and in the 65 east of ditto, the lode yields 2 tons per fathom. These new ends are started from the bottom of No. 171 winze, and are likely to open a good length of ore ground in each direction. In the 55, west of San Francisco shaft, there is no improvement to notice. The lode in the 55, east of ditto, continues to produce a value; the 100 fathom level end was very good until a few days since, when it came in contact with the cross-course, and it will, doubtless, improve again quickly. The lode in the 90, east of San Pablo shaft, yields 3 tons per fathom; this driving, although not quite so good as it was, continues to open out a rich piece of ore ground. In the 75, east of San Miguel shaft, the lode is cut off by a cross-course, and remains unproductive. The lode in the 25, east of Palgrave's shaft, and in the 25, west of ditto, produces 1 ton per fathom. In these ends the lode is small, compact, and very regular, and likely to give us a good length of ore ground. The sinking of the 100 fathoms shaft, under the 100, has been interrupted by the men giving up their bargains in the middle of the month; the lode yields 1 ton per fathom. Salina's winze is deep enough for the 95, and will be holed shortly; it contains a lode worth 1½ ton per fathom. In Nieto's winze, below the 75, the lode is unproductive. Topotes' winze, under the 90, is going down in a very kindly lode, yielding 1½ ton per fathom. The weekly weighings of ore were kept up very regularly in the past month, and the stopes are looking much as usual at present, enabling us to estimate the raisings for June at 332 tons. The machinery is in good working order, and the surface operations go on very regularly.

**SWEETLAND CREEK (Gold).**—G. D. McLean, May 26: I received a telegram from you on Saturday last asking the reason of the small profit last run. I wrote you some time since that everything had been neglected by the old company that could be left undone, in expectancy of the sale. They had stopped the main tunnel, neglected to repair sluices and put in under currents on the creek, that were much needed; let the supply of blocks run short, left the grizzly bars un-replaced, and the granite in a condition requiring several hundred dollars expense to place it in running order. I also wrote in detail concerning the water, that the price was too high to wash indiscriminately, and consequently I was confined to the channel. I repeat these things, and you may not be disappointed in the returns, and attribute it to bad management, and that you may not expect too much under the circumstances. The expenses, however, will gradually decrease, and then I hope to report more to your liking. You may rest assured I will leave nothing undone that I conceive will be of benefit to the company. I had an interview with the agent of the ditch a few days since, and he talks a little more favourably about the price of water. He refuses to reduce the price any for washing in the channel, but seems rather more liberally inclined for washing the sluices. So I am preparing to wash in another place, in what is termed red-dirt, skirting the channel, and will report the result next clean-up. By-the-by, I propose to extend this run to the last of next month, and after that keep pace with the months. Working at night in hydraulic mining is attended with many disadvantages when under so tall a bank as we have—150 feet high; and, in fact, in all cases the men

work timidly for fear of being caved on, and you cannot see to pipe to the same advantage as in daylight; however, we do run some at night, when dirt is plentiful immediately after a blast, and would much more but for economising in water. As to the plan of working the mine, we wash on the channel all the day with 600 inches of water, we keep the main tunnel running at night; when the water is off, we keep one and sometimes two men on the creek attending to the sluices and under-currents, and removing obstructions, and when cleaning up we employ five or six men. On the granite there is quite a space where the top has been washed off, as low as the grade or tall race at that end of the hill will lower it. We employ 12 or 14 Chinamen at present wheeling this bottom into a sump, or hopper, constructed over the sluice, which when full we wash out. I have just constructed a short ditch or reservoir, by which I save all cost for water for washing these dumps. After I have cleared up at the granite once, if I find it pays on this system I intend to increase the number of Chinamen. I pay the Chinamen \$1.50 per day, just half what we pay white men, and should we consult economy alone we should employ Chinese labour altogether. Our tail race, Sweetland Creek, is very profitable, paying well at little expense. We are as, if not more, indebted to other claims for the yield of the creek as to our own. These claims may at any time suspend operations, owing to the price of water or other causes. Should they do so, the creek would pay less. Our claim is looking well, and we could obtain water for what it commands at other mining localities we could crowd it, and increase the profits materially.

**RHINE.**—Capt. Garland, June 15: Our progress in sinking Henty's engine-shaft is fair and satisfactory. Early in the month we had a floor of sand-grained slate rather harder than before, and requiring occasional blasting, but the rock passing into true clay-slate has become easier. The water, as might be expected, is increasing, but as yet does not materially affect our progress. The shaft was set at the beginning of the month to six men, at 48 thalers per lachter, or about 6l. per fathom, exclusive of windlass work, which is done by labourers, who are paid at 14 silver groschens, or 16s. 4d. per day. Marienfreude shaft has been cleared and secured to a depth of 4 fms. There is no change to observe in the Adele adit level. It is being driven by 7 men and two boys, at 15 thalers per lachter, about 38s. per fathom. We shall have a pair of men driving in the Marienfreude adit by the end of the week. Good speed is being made in building the foundations for the engine and boiler houses, and we are anxious to push the work on and get the engine erected as the chances are we shall shortly find we are beginning to draw the water from the old mine.

[For remainder of Foreign Mines, see to-day's Supplement.]

**CALCINING FURNACES.**—By the invention of Messrs. GIBB and C. GELSTHARP, JARROW-ON-TYNE, instead of the working bed ordinarily employed in reverberatory furnaces the inventors use in lieu thereof a horizontal pan, which is caused to revolve on its vertical axis. On this pan the ore or other material to be calcined is spread, as on the ordinary furnace bed, by a series of scrapers lowered through the roof of the furnace. The stirring of the ore or other substance, which is usually performed by means of rakes worked by manual labour, or in some cases by the assistance of mechanical appliances, is effected by a plough-shaped stirrer, which turns the ore or other substance over as it is carried forward by the rotation of the furnace bed or pan. The stirrer is moved slowly and gradually in a direction radial to the circle of the bed, so that every portion of the ore is turned over from time to time.

**FLAT WIRE-ROPE.**—The invention of Mr. J. EDGE, Madeley, consists in so interlacing the sewing or tying wires by which the several compound strands are secured together to form the flat-rope, that the flat-rope, that the sewing or tying wires are situated entirely inside the flat-rope. This is effected by causing the sewing or tying wires to be interlaced in such a manner that, instead of passing around the single strands forming the edge of the flat-rope as usual, they pass under the adjacent single strands; then across the rope in the interior thereof to the opposite edge of the flat-rope, and under the single strands adjacent to those at the said opposite edge, and so on in a zigzag direction through the whole length of the rope.

**IRON GRIDERS.**—The invention of Mr. T. STEVENSON, Edinburgh, consists in the construction of composite metallic beams, or tubes, of any form, composed of pieces bolted or riveted together, which pieces shall consist of metals, or combination of metals, possessing different properties—that is to say, such pieces shall be of metals, or combinations of metals, possessing powers of resistance to compression and to extension varying proportionally, or approximately according to the varying crushing and tensile stresses in the beam or structure, or in the event of its being cheaper to limit the application of the principle, a stronger material could be used only for the upper portions, where the compressing force has to be resisted.

**BURNING LIQUID HYDRO-CARBONS.**—By the invention of Mr. J. BLYTHE, London-street, induced compound currents of hydro-carbon vapor and atmospheric air are formed in pipes leading from retorts or vaporisers to tuyeres or burners by the action of smaller currents or jets of compressed air, which exhaust from the vaporisers or retorts the free vaporised hydro-carbon, and lead it through pipes to the furnace tuyeres or burners mixed with the quantity of air necessary to effect its perfect combustion.

**WATSON BROTHERS,**  
MINING AGENTS, STOCK AND SHARE DEALERS, &c.  
1, ST. MICHAEL'S ALLEY, CORNHILL, LONDON.

**SATURDAY.**—Market moderately active. Grenville, East Grenville, and Tankerville in fair demand at an advance. Chiverton Moor, 5 to 5½; Cook's Kitchen, 19 to 21; Drake Walls, 27s. to 28s.; East Caradon, 4½ to 5; East Lovell, 3½ to 3; Great Laxey, 18½ to 19; Great Vor, 9 to 10; Hingston Down, 10s. to 10½; Marke Valley, 6½ to 7; New Lovell, 2½ to 3; North Crofty, 3 to 3½; Prince of Wales, 16s. to 18s.; Providence, 39 to 40; Tankerville, 18½ to 19; Van, 78 to 81; Van Consols, 4½ to 4¾; West Chiverton, 54 to 56; West Maria, 2½ to 3; Wheal Chiverton, 2½ to 3; Wheal Grenville, 2½ to 3; Wheal Seton, 20 to 22½; Australian United, 3 to 3½; Don Pedro, 3½ to 3¾; Frontino, 19s. to 21s.; Pacific, 8½ to 9.

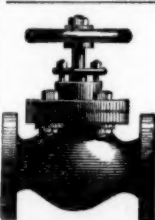
**MONDAY.**—Market rather dull. Australian United, Mary Ann, and West Maria flat. East Grenville, Grenville, and East Lovell in demand. Bwch Consols, 3½ to 3¾; Chiverton Moor, 5 to 5½; Cook's Kitchen, 19 to 21; Drake Walls, 27s. to 28s.; East Caradon, 4½ to 5; East Lovell, 3½ to 3; Great Laxey, 18½ to 19; Great Vor, 9 to 10; Marke Valley, 6½ to 7; New Lovell, 2½ to 3; North Crofty, 3 to 3½; Prince of Wales, 16s. to 18s.; Providence, 39 to 40; Tankerville, 18½ to 19; Van, 78 to 81; Van Consols, 4½ to 4¾; West Chiverton, 54 to 56; West Maria, 2½ to 3; Wheal Chiverton, 2½ to 3; Wheal Grenville, 2½ to 3; Wheal Seton, 20 to 22½; Australian United, 3 to 3½; Don Pedro, 3½ to 3¾; Frontino, 19s. to 21s.; Pacific, 8½ to 9.

**TUESDAY.**—Market very quiet. Dealers busy with the settlement. Chiverton Moor, 5 to 5½; Cook's Kitchen, 19 to 21; Drake Walls, 27s. to 28s.; East Caradon, 4½ to 5; East Lovell, 3½ to 3; Great Laxey, 18½ to 19; Great Vor, 9 to 10; Marke Valley, 6½ to 7; New Lovell, 2½ to 3; North Crofty, 3 to 3½; Prince of Wales, 16s. to 18s.; Providence, 39 to 40; Tankerville, 18½ to 19; Van, 78 to 81; Van Consols, 4½ to 4¾; West Chiverton, 54 to 56; West Maria, 2½ to 3; Wheal Chiverton, 2½ to 3; Wheal Grenville, 2½ to 3; Wheal Seton, 20 to 22½; Australian United, 3 to 3½; Don Pedro, 3½ to 3¾; Frontino, 19s. to 21s.; Pacific, 8½ to 9.

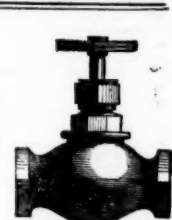
**WEDNESDAY.**—Market very quiet. East Lovell shares firm. East Grenville and Tankerville shares in demand. Grenville shares advanced to 2½, buyers. West Maria shares flatter. Chiverton Moor, 5 to 5½; Cook's Kitchen, 19 to 21; Drake Walls, 27s. to 28s.; East Caradon, 4½ to 5; East Lovell, 3½ to 3; Great Laxey, 18½ to 19; Great Vor, 9 to 10; Marke Valley, 6½ to 7; New Lovell, 2½ to 3; North Crofty, 3 to 3½; Prince of Wales, 16s. to 18s.; Providence, 39 to 40; Tankerville, 18½ to 19; Van, 78 to 81; Van Consols, 4½ to 4¾; West Chiverton, 54 to 56; West Maria, 2½ to 3; Wheal Chiverton, 2½ to 3; Wheal Grenville, 2½ to 3; Wheal Seton, 20 to 22½; Australian United, 3 to 3½; Don Pedro, 3½ to 3¾; Frontino, 19s. to 21s.; Pacific, 8½ to 9.

**THURSDAY.**—Market very quiet. East Lovell advanced to 3½, buyers; Grenville, 2½, buyers; and East Grenville firm at the quotation. Bwch Consols, 3½ to 3¾; Chiverton Moor, 5 to 5½; Cook's Kitchen, 19 to 21; Drake Walls, 27s. to 28s.; East Caradon, 4½ to 5; East Lovell, 3½ to 3; Great Laxey, 18½ to 19; Great Vor, 9 to 10; Marke Valley, 6½ to 7; New Lovell, 2½ to 3; North Crofty, 3 to 3½; Prince of Wales, 16s. to 18s.; Providence, 39 to 40; Tankerville, 18½ to 19; Van, 78 to 81; Van Consols, 4½ to 4¾; West Chiverton, 54 to 56; West Maria, 2½ to 3; Wheal Chiverton, 2½ to 3; Wheal Grenville, 2½ to 3; Wheal Seton, 20 to 22½; Australian United, 3 to 3½; Don Pedro, 3½ to 3¾; Frontino, 19s. to 21s.; Pacific, 8½ to 9.

**FRIDAY.**—Active demand for Van, 80 to 82; Grenville, 2½ to 3; East Grenville, 2½ to 3; Seton, 30 to 32½; Great Vor, 9½ to 10½; East Lovell, 3½ to 3¾; East Caradon, 4½ to 5; Cook's Kitchen, 19 to 21; Drake Walls, 27s. to 28s.; Chiverton Moor, 5 to 5½; Cook's Kitchen, 19 to 21; Drake Walls, 27s. to 28s.; East Caradon, 4½ to 5; East Lovell, 3½ to 3; Great Laxey, 18½ to 19; Great Vor, 9 to 10; Marke Valley, 6½ to 7; New Lovell, 2½ to 3; North Crofty, 3 to 3½; Prince of Wales, 16s. to 18s.; Providence, 39 to 40; Tankerville, 18½ to 19; Van, 78 to 81; Van Consols, 4½ to 4¾; West Chiverton, 54 to 56; West Maria, 2½ to 3; Wheal Chiverton, 2½ to 3; Wheal Grenville, 2½ to 3; Wheal Seton, 20 to 22½; Australian United, 3 to 3½; Don Pedro, 3½ to 3¾; Frontino, 19s. to 21s.; Pacific, 8½ to 9.



**IMPROVED VALVES AND TAPS,**  
FOR WATER, STEAM, GAS, ETC.,  
**Made by MATHER AND PLATT,**  
**SALFORD IRONWORKS, MANCHESTER.**



ILLUSTRATED SHEET, WITH PRICES, CAN BE SEEN ON APPLICATION

**PORTABLE ENGINES,**  
FROM 4 TO 25-HORSE POWER.  
**THRASHING MACHINES,**  
Single, Double, and Treble Blast, with Patent Rolled Steel Beater Plates, and all other Recent Improvements.  
**CLAYTON & SHUTTLEWORTH,**  
Stamp End Works, Lincoln; and 78, Lombard Street, London.  
CATALOGUES ON APPLICATION, FREE BY POST.



## BRITISH MINES.

We have been hindered from regularly prosecuting our timber work in the case of the 140, having had some lets, from the piston of the pumping engine having got out of order; that has now been set right, and we are making good progress. The slope in the back of this level produces 9 cwt. of black tin per cubic fathom; lode 12 ft. wide. In the rise in the 120 east the lode is worth 61. per fathom. In the 120 cross-cut north the lode is not yet cut, but the ground is changing in



**WHEAL UNY.**—William Rich, Matthew Rogers, S. Coade, Jun., June 10: The ground in Hind's shaft is easier for sinking than it has been. Good progress is being made in sinking the pump-shaft below the 150. The 120, 130 and 140 shafts, is worth 307, per fathom. The 150 is worth 102, per fathom. The 160 shaft, is worth 102, per fathom. In the 160 is not yet through the lode, and is very hard. The 140 east is worth 107, per fathom. The part of the lode recently intersected in the 130 cross-cut north is worth 77, per fathom. We are enlarging Gooding's



The prospectus of the **BRAZILIAN COLLIERIES** will be issued in the course of a few days. The object of the company is to purchase an imperial (Brazilian) concession, which gives mining rights over any part of the district of Sao Jeronymo which the company may select, on condition being that one data of 169½ acres shall be given for each 20 contos of reis (2000*l.*) expended. At the date of the concession enough had been expended to entitle the concessionnaires to 1½ acres, and it is now proposed to lay out 50,000*l.* more, which will give the company exclusive rights over 5000 acres. The discovery of coal in Brazil, and the great advantage likely to result both to the Brazilians and to those providing capital for the working of coal deposits has already been fully discussed in the *Mining*



Journal, and the works where the operations of the company are to be carried on appear to be most favourably situated. The colliery is near the town of San Jeronimo, on the River Jacuhy, whence there is uninterrupted steam navigation with the capital, the shipping ports, and with various inland ports. The seam of coal at present being worked is 4 ft. 8 in. thick, and has been proved by sinking to be of considerable extent. Dr. Percy, of the Jermyn-street School of Mines, states the theoretical evaporative power of the coal to be 10-01 lbs. per lb. of coal. Ironstone capable of yielding a high quality of metal and flux are found in the immediate locality of the colliery, so that smelting operations could be most successfully carried on. It is proposed to raise a capital of 100,000l., in shares of 5l. each, and it is estimated that upon this amount a dividend at the rate of 30 per cent. per annum may be anticipated. The direction consists of gentlemen practically connected with the business which it is proposed to establish.

The PIEL HEMATITE IRON COMPANY, to the formation of which, with a capital of 100,000l., in shares of 25l. each, reference has already been made, will close the list of applications for shares on Tuesday next. The company propose to smelt the richer ores of Ireland in combination with the hematite ores of Furness, and the site selected for the works is near the establishment of the Barrow Hematite Steel Company. The proximity of the Barrow docks and harbour of Piel will be highly advantageous, and the cost of making iron will be about 2l. 12s. 6d. per ton, whilst the selling price is now 3l. per ton at existing works, so that a weekly output of (say) 1200 tons on the average from three furnaces, which it is proposed to erect, would, allowing for market fluctuations, give 15 per cent. per annum upon the 70,000l. to be called up in the first instance for the purchase of the property and for working capital.

The NEW VITIFER CONSOLS MINING COMPANY is in course of formation, with a capital of 12,000l., in shares of 2l. each, for the purpose of developing a valuable mineral property near the Old Birch Tor and Vitifer Mines, on Dartmoor. The sett is very extensive, from 2000 to 3000 acres, and is held direct from the Duchy, at one-eighthteenth royalty. The property is well situated, and there is an abundance of water power at all seasons of the year. Six tin lodes have been already opened up, and proved to be most satisfactory: there are also three good cross-courses within the sett, and from 200 to 300 tons of tinstuff is now at surface ready for stamping. Messrs. Barnard, Thomas, Tribe, and Co., of Bristol, who have undertaken the formation of the company, have satisfied themselves as to the position and prospects of the mine. They have employed Captain Edwards, an independent mining surveyor, to inspect the mine, and his report is appended to the prospectus, which will be found in another column. Capts. Skewis and Trevanthen make certain suggestions for the future working of the mine, and consider that if these be vigorously carried out the mine may be brought into profitable working in six or eight months. No. 4 lode is from 7 to 8 feet wide, and, judging from samples already assayed, will leave large profits. Capt. Wm. Richards considers the property one of great value, and that it can be developed on a mere nominal outlay. It is mentioned that among the directors are gentlemen of known practical knowledge and experience, and that this, in connection with their large interest in the company, cannot fail to give confidence.

At Dolcoath Mine meeting, on Monday, the accounts showed a profit of 5277l. 10s. 1d. on the two months' working. A dividend of 5012l. (3l. 10s. per share) was declared, and 1196l. 3s. 6d. carried forward. After the business was concluded, the large party, numbering over 70 adventurers, adjourned to the dining-room, where they partook of an excellent dinner, under the protection of Mr. M. G. Pearce, of London. After the usual loyal toasts and the ducy of a lord of the manor had been drunk, the Chairman, in proposing the health of "Continued success to Dolcoath Mine," said the dividend they had received that day admirably told its own tale as regarded the state of the mine. At the deepest point—the 302 ft. level, or 340 fms. from surface—the lode was worth 28l. per fathom, the deepest point of any mine in operation in the neighbourhood, and an important feature for future permanency. The shareholders' neighbourhood, and almost inexhaustible. The tin market was good and the demand 14 to 15 feet, and as their future prosperity depended much on a continuation of these circumstances, he saw no reason why they should not enjoy a long season of prosperity. He then alluded to the depressed state of the copper market, and was of opinion that better times were in store for copper mines. He hoped that the "bailing" and the "bearing" in mine shares would never be resorted to again as in times past. For his part he would never employ a broker who sold a share that was not his own. The Chairman then proposed the health of the manager, Capt. Isaiah Thomas said it was very gratifying to the agents to meet the shareholders' account after account with the declaration of an increased dividend. They had that day declared the largest dividend they had received for the last 10 years, which was principally saved from the economy exercised in the increased expedition in dressing the ores and drawing the stuff. He did not know the mine was at all richer, probably not so rich. The great feature of importance now was the lode in the deepest point of the mine. It at that level (the 302 ft.) a lode of value were discovered, their position would be such as would give them a mine of unusual value and permanency.

At West Seton Mine meeting, on Tuesday, the accounts showed a profit on two months' working of 1256l., with a credit balance brought forward 1285l. A dividend was declared of 1400l. (3l. 10s. per share), carrying forward a credit balance of 1242l.

At the Great Laxey Mining Company meeting, on Wednesday, the directors declared the usual quarterly dividend of 10s. per share (being at the rate of 50 per cent. on the capital), payable in 14 days.

At the South Wheal Crofty meeting, on Monday (Mr. E. H. Rodd in the chair), the accounts for the four months ending April showed a credit balance of 771l. 13s. 9d. The profit on the four months' working was 466l. 2s. 6d. A dividend of 468l. 10s. (10s. per share) was declared, and 398l. 8s. 9d. carried to credit of next account. Capts. Gilbert and Fox reported upon the various points of operation. They have about 45 men on tribute, at an average of 9s. 6d. in 12. It was resolved that the questions connected with the working of this mine, with reference to Tineroff and East Pool sets, be referred to the lord's agents to negotiate with the agents of those mines. An annual subscription of 2l. 2s. was voted to the Accidental Ward of the Convalescent Miners' Hospital, Redruth.

At Brynpostig Mine meeting on Monday (Mr. Job Taylor, J.P., in the chair), it was unanimously decided to increase the capital to the extent of 5000l. Details in another column.

At Wheal Crebor meeting, on Thursday (Mr. H. Emanuel in the chair), the accounts for the three months ending April showed a cash balance of 114l., and liabilities in excess of assets of 192l. 10s. 5d. A call of 1s. 6d. per share was made. The agent reported very encouragingly of the prospects of the mine.

At the Mid-Wales Lead Mine meeting, on Monday (Mr. Job Taylor, J.P., in the chair), the report of the directors congratulated the shareholders upon the improved condition of the mine. The board continued to have the utmost confidence in the ultimate success of the mine, and although much disappointment that the sales of ore had not been maintained, they still believe that the time is quickly approaching when the mine cannot fail to make good profits. The report of the manager (Capt. John Kitto) states that he has no hesitation whatever in repeating that he has still the greatest confidence in the ultimate success of the undertaking, and firmly believes that this property on being more extensively developed will prove to be one of the most productive and profitable mines in the whole district. Captain Walter Eddy, who has specially reported upon the property, feels confident that by further sinking Mid-Wales will become a good dividend-paying mine. The Chairman, in moving the adoption of the report and balance-sheet, expressed his surprise that the whole of the debenture bonds had not been taken up by the shareholders, and hoped that outsiders would not be allowed to come in and reap the advantage of the expenditure incurred upon the mine. Captain John Kitto, the manager, explained the prospects presented at the different points of operation, and expressed an unabated confidence in the ultimate success of the mine. The lode in its character was similar to the Van lode; it was not so large, but it was next to Van the largest lode in the district. He expected the next sale of ore would take place in July, and that it would not be less than 20 tons of lead, and about the same quantity of blende. The motion adopting the report and balance-sheet was put, and carried unanimously. Messrs. Job Taylor, Newby, Nightingale, and Ross were re-elected directors. Messrs. Killingsworth and Co. were re-elected auditors. A special vote of thanks was passed to Capt. Kitto, the manager. A vote of thanks to the Chairman and directors concluded the meeting.

At the South Condurrow Mine meeting, on Thursday (Mr. Weston in the chair), the accounts showed a profit upon the four months' operations of 730l. The Chairman congratulated his fellow shareholders upon the encouraging character of the report (which appears elsewhere). It was extremely gratifying to his colleagues and himself to find that the mine was in such a favourable position. There was no doubt that at last they had turned the corner, and he firmly believed that the general prospects of their mine were certainly as encouraging as any mine in the district. He believed that with energy and circumspection in their work, great results would be derived. Mr. E. King (a member of the committee) stated that very few mines had been inspected more of late than South Condurrow, and the general opinion appeared to be that they possessed a large deposit of tin. With that metal at 10l. or 12l. per ton less than the present price good profits ought to be made. The report was ordered to be entered on the minutes, and the accounts were passed and allowed. The committee were authorised to purchase a suitable steam-whim; they were also requested to draw up a request to be forwarded to the trustees of the Pendarves estate with the view of obtaining an abatement of the dues. The committee of management were re-elected. Mr. J. Field being voted to the vacancy occasioned by the resignation of Mr. Buckland. A vote of thanks to the Chairman concluded the proceedings.

At the Plumas Gold Mining Company of California first meeting of shareholders, held at the London Tavern, Bishopsgate, the provisional directors retired, according to the terms of the prospectus, and an influential board was elected for the ensuing year. The whole of the proceedings were of a satisfactory character, and a committee of shareholders was appointed to confer with

the directors for the purpose of selecting an agent to proceed to California to report upon the property. We understand that Professor Vincent, of the Geological and Royal Geographical Societies, has since been selected for this important duty, and will start for San Francisco without delay.

At the Nerbudda Coal and Iron Company meeting, on Wednesday (Mr. S. J. Wilde in the chair), the report of the directors and balance-sheet were received and adopted. Details in another column.

A petition for winding-up the Fortune Copper Mining Company of Western Australia (Limited) is to be heard before Vice-Chancellor James on the 25th instant.

Contracts for Mine Materials.  
For WEST CHIVERTON, and other Mines, near TRURO, CORNWALL.

TENDERS are invited for the SUPPLY of MATERIALS as under, for twelve months—viz., from the 1st day of July next to the 30th of June, 1871—

CANDLES, TALLOW, ANTI-FRICTION GREASE, RAPE and OLIVE OIL, IRON, STEEL, CRUSHER ROLLS, LEATHER, WHITE, RED, and SHEET LEAD, NAILS of every description, &c.

For particulars, apply to the Manager, Capt. JULEFF, Garra's Wharf, Truro; or to Mr. RICHARD CLOGG, Purser, Liskeard, to whom Tenders should be addressed "Tender for Garra's Wharf, Truro," on or before the 24th instant, and not later than One o'clock P.M.

Dated Liskeard, June 8, 1870.

Seven and a-half per cent. Debentures—First Mortgage.  
THE NEATH MERTHYR STEAM COLLIERY COMPANY (LIMITED) are PREPARED TO ISSUE DEBENTURES FOR FIVE THOUSAND POUNDS AT SEVEN AND A-HALF PER CENT. INTEREST FOR THREE OR FIVE YEARS, in sums of not less than £100. For forms of application, &c., apply at the Offices of the Company, 10A, King's Arms-yard, London, E.C.

TO INVESTORS.  
PREFERENCE SHARES in a very desirable COLLIERY, situated in the heart of the COAL DISTRICTS of SOUTH WALES, to yield a SEVEN AND A-HALF PER CENT. PREFERENCE DIVIDEND, with a further estimated DIVIDEND of from SEVEN to FOURTEEN PER CENT.  
Full particulars may be obtained of Messrs. SHELFORD and ROBINSON, C.E., No. 7, Westminster-chambers, Westminster; or of Messrs. FEARON, CLABON, and FEARON, Solicitors, 21, Great George-street, Westminster.

SPECIAL OPPORTUNITY.  
THERE are TWO MINES—one a most promising COPPER ORE MINE, and the other a TIN MINE—upon which a very good sum has been spent by three or four gentlemen of good position, under the Cost-book Principle, each property being divided into 4000 shares. As they are quite out of the neighbourhood, they do not care, as private individuals, to spend more money, but are willing to SELL a FAIR NUMBER OF SHARES at a LOW FIGURE, the entire sum paid for them being paid to the Mines' account, for the further development of the Mine, or they are prepared to TREAT for the ENTIRE SALE.  
Apply to Mr. H. BLANCHFORD, Accountant and Sharebroker, 59, High-street, Exeter.

TO CAPITALISTS.  
THE PATENTEES of the HAFENNEGGER EXPLOSIVE COMPOUND wish to meet one or more Gentlemen willing to ADVANCE SUFFICIENT CAPITAL TO WORK OUT or PURCHASE the PATENT in England or the Continent. This compound is used for BLASTING PURPOSES in MINES, QUARRIES, &c. It is ten times stronger, not so expensive or dangerous as gunpowder, and produces no smoke. We have most favourable reports upon experiments made in Cornwall, where a large sale can immediately be made.

Apply to Mr. CHARLES DORFIS, 40, Waterloo-road, London.

GEAR'S MINE, ST. HILARY.

THE PROPRIETORS of the above MINE, being also the landowners, and having made a DISCOVERY of TIN, which is only worked to the depth of a few fathoms below surface, where there is now a good lode in the bottom and ends, are open to TREAT with a MINING COMPANY to WORK the same, which will be granted at 1-18th royalty. More than £100 worth of tin has been sold from here by miners within a very short time, and it also shows good indications for the production of copper.  
Every facility will be shown to mining agents, or others, for the inspection of the mine, by applying to the proprietors, Gear's Mine, Goldsmithy, Marazion, Cornwall.—Dated June 7, 1870.

RAILS.

WANTED, the FOLLOWING QUANTITIES OF NEW or SECONDHAND RAILS:—  
About 40 tons T RAILS, 24 lbs. to the yard;  
About 30 tons T RAILS, 16 lbs. to the yard;  
About 30 tons CONTRACTORS' RAILS, for sidings, from 40 lbs. to 50 lbs. to the yard.  
Particulars and terms to be sent to the SILKSTONE MAIN COLLIERY, near Barnsley.

SPELTER WORKS.

THE ADVERTISER is open to an ENGAGEMENT as BUILDER or MANAGER of a SPELTER WORKS, having had considerable experience. No objection to go abroad.  
Application to be made, by letter, stating particulars, &c., to "Spelter," care of Frederick May, Advertising Agent, 9, King-street, St. James's, S.W.

BRITISH SPELTER AGENCY WANTED.

AN OLD and RESPECTABLE FIRM in the METAL TRADE would be happy to treat with some WORKS for the SALE of their SPELTER in one of the PRINCIPAL TOWNS in the MIDLAND COUNTIES, where the consumption of spelter is very large.  
Apply to "P. and C.," MINING JOURNAL Office, 26, Fleet-street, London, E.C.

PARTNERSHIP—COAL TRADE.

A COLLIERY OWNER, having an opportunity of extending the workable area of Coal Land, DESIRES ADDITIONAL CAPITAL TO CARRY OUT HIS VIEWS.  
Apply to JOSEPH SIMPSON, Public Accountant, 17, Pavement, Finsbury, London, E.C.

WATSALL COLLIERY, CLEE HILL, NEAR LUDLOW, TO BE LET, BY PRIVATE CONTRACT.  
For particulars and to treat, apply to Messrs. URWICK and MARSTON, solicitors, Ludlow.

SOUTH AMERICA.

AN INTEREST in a VALUABLE and EXTENSIVE MINING PROPERTY FOR SALE, to which a railway is now being completed.  
For particulars, address "G. and R.," care of Mr. B. Fothergill, C.E., 15, George-street, Mansion House, London.

A RICH QUICKSILVER MINE in HUNGARY FOR SALE, or TO BE WORKED ON ROYALTY.  
For particulars, apply to H. BERMAN, Königsgasse, 9, Pest, Hungary.

TIN MINE FOR SALE.

TO BE DISPOSED OF, on very reasonable terms, a FIRST-RATE TIN MINE, with MATERIALS, BUILDINGS, &c., thereon, in a good TIN DISTRICT. Parties wanting such, with a small capital, will find this to be a rare opportunity.  
Apply, "Z. Y.," Post Office, Redruth, Cornwall.

MINING SETTS IN DEVON.

TIN, COPPER, AND LEAD, in the Manor of SHEEPSTOR, and LANDS in TAVISTOCK, WHITCHURCH, PETER TAVY, LAMBTON, and LIDFORD. Water power. Terms, 21 years, renewable. Dues, 1-30th for Tin, 1-20th for Copper and Lead, reduced to 1-60th after a moderate outlay, until mines pay cost.  
Apply to Mr. CATER, Solicitor, Plymouth.—Feb. 19, 1870.

TAVARONE MINING COMPANY, ITALY.—FOR SALE, TWENTY SHARES in this highly-recommended Mine, at 5s. discount. Address, "Y. D.," MINING JOURNAL Office, 26, Fleet-street, London, E.C.

CARBONATE OF BARYTES.

FOR SALE, at BLAGILL MINE, near ALSTON, a considerable QUANTITY OF BARYTES, ready for delivery.  
For particulars, apply to Mr. CRAWFALL, Alston, Cumberland.

TO INVESTORS.

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NOTICE IS HEREBY GIVEN, that the FIVE MILE EXHIBITION LINE of HODGSON'S SYSTEM of WIRE ROPE TRANSPORT, on the Brighton Downs at Kemp Town, will be WORKED from One to Four on SATURDAY and MONDAY AFTERNOONS till the end of September, 1870. On other days by arrangement.  
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Subscribed capital.....£2,000,000  
Paid-up capital.....500,000  
Reserve fund.....145,000

The Court of Directors of the Colonial Bank hereby give notice that, in pursuance of the provisions of the Charter, a HALF-YEARLY GENERAL MEETING of the proprietors will be HELD at the London Tavern, Bishopsgate-street, on THURSDAY, the 7th day of July, 1870, at Two o'clock precisely, to receive the report of the proceedings of the Corporation.  
The Transfer Books will close on the 27th June, and re-open on the 14th July, 1870.  
By order of the Court of Directors,  
G. A. CALVERT, Secretary.

13, Bishopsgate-street Within, E.C., 13th June, 1870.

ST. JOHN DEL REY MINING COMPANY

(LIMITED).  
Notice is hereby given, that the ANNUAL ORDINARY GENERAL MEETING will be HELD at the London Tavern, Bishopsgate-street Within, on WEDNESDAY, the 29th day of June next, at Two o'clock precisely.  
To receive and adopt the directors' report of the company's proceedings since the last general meeting.  
JOHN HOCKIN, Managing Director.  
8, Tokenhouse-yard, London, E.C., June 13, 1870.  
The Transfer-books of the company will be closed from Thursday, the 23rd, to Wednesday, the 29th June, both days inclusive.

THE COLORADO TERRIBLE LORE MINING COMPANY

(LIMITED).  
Notice is hereby given, that the FIRST ORDINARY GENERAL MEETING of the company will be HELD at the office of the company, Bartholomew House, E.C., on WEDNESDAY, June 22, at Two P.M., precisely.  
To receive the report of the directors, and transact the ordinary business of the company.  
By order of the Board,  
F. ANDREWS, Secretary.

EBERHARDT AND AURORA MINING COMPANY

(LIMITED).  
Notice is hereby given that the FIRST ORDINARY GENERAL MEETING of the above company will be HELD at the Terminus Hotel, Cannon-street, London, on MONDAY, the 20th day of June inst., at the hour of Two o'clock in the afternoon, for the consideration of the reports of Messrs. Philipotts and Atwood, and the passing thereon of such resolutions, if any, as may be thought fit, the election of auditors and directors, and the fixing of their remuneration respectively; also for prescribing the time and place at which future ordinary general meetings shall be held, and for the transaction of the ordinary business of the company.  
By order of the Board,  
Dated Copthall Chambers, 1, Copthall-court, London, 8th June, 1870.

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INVESTMENTS IN LEAD MINES.—

THE DIVIDENDS paid by LEAD MINES for the year have DOUBLED IN AMOUNT in the last ten years, and are likely to continue to increase. Some of the young lead mines will probably become profitable, and rise greatly in value in a short time. Full particulars, with a MAP of the Cardiganshire and Montgomeryshire districts (including Van, Dyllife, Plynlimmon, East Darren, South Darren, Lisburne, Cwmystwith, Cefn Brywyn, and other mines), can be obtained (price 1s.) on application to J. H. MURCHISON, Esq., No. 8, Austinfriars, London, E.C.

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With the Produce, Number of Shares, Names and Residences of the Pursers and Managers of each Mine, together with the Agents' and Engineers' Names, Pay-days, &c., &c.  
By J. WILLIAMS, Commission Agent.  
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HENRY CORT, the Father and Founder of the British Iron Trade, and the

Tubal Cain of our Century and Country.—Times, July 29, 1866.

ELIZABETH CORT, widow of RICHARD, youngest SON of the above, left penniless, also an invalid suffering from chronic bronchitis and chest affections, and just recovered from a severe attack, is so reduced in health and strength, and being quite destitute, this APPEAL is made to assist her to LIQUIDATE LIABILITIES incurred during four months' sickness, and to enable her to be removed to the sea coast.  
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LEAD ORES.

Date.	Mines.	Tons.	Price per ton.	Purchasers.
June 7—	Maes-y-Safn	50	£12 0 0	Delafeld Company.
—	ditto	46	12 0 0	ditto
—	ditto	12	11 6 0	Sheldon, Bush, & Co.
10—	Powell United	40	11 8 6	Walker, Parker, & Co.

ARSENIC.

Date.	Mine.	Tons.	Price per ton.	Amount.	Purchasers.
June 14—	North Roskear	45	£23 12 0	£105 12 0	—

COPPER ORES.

NO SALE on Thursday last.  
Copper ores for sale at the Royal Hotel, Truro, on Thursday next—Mines and parcels.—Devon Great Consols 1444—South Caradon 558—Marke Valley 477—East Caradon 248—Glawton 230—Okel Tor 200—Glasgow Caradon 193—Kelly Bray 160—New Pembroke 157—Gonamea 91—Bedford United 85—Prince of Wales 77—Wheal Rumilly 74—Cradock Moor 42—Caradon Consols 33.—Total, 4066 tons.  
NO SALE on Thursday week, June 30.



**THE MINERAL RESOURCES OF RUSSIA.**—Although the mineral resources of Russia are known to be enormous, and such names as that of Demidoff enjoy an almost universal reputation, comparatively little is known concerning the individual districts; the publication, therefore, of a concise treatise on the "Russian Metallurgical Works, Iron, Copper, and Gold," by one so well acquainted with the subject as Mr. HERBERT BARRY, is a matter for congratulation, since the capitalist empire undoubtedly affords a large field for the profitable investment of funds in mining and metallurgical enterprises. Mr. Barry's book appears to furnish precise and abundant information which the capitalist should possess, commencing with an account of the earliest exertions of Nikitè Demidoff, and continuing the record to the present time, the industrial position of Russia, so far as regards its metallurgical works, is extremely low, yet the opinion that will be formed from reading Mr. Barry's book is that many of them, if they could be purchased at their present value, and developed with English capital and skill, would prove highly remunerative, but that their purchase at a



nominal price (unless the payment be entirely dependent upon profits to be realised, in which case somewhat larger liberality might be exercised) absolutely essential to success. The quality of the ore seems to be excellent, and labour is cheap, but the works appear to be of excessive size, as a rule, considering the quantity of fuel at command. Mr. Barry is careful to explain the relative merits of the several districts and works, and to suggest means for bringing them into profitable working order. The work, which is published by Mr. Edgingham Wilson, of the Royal Exchange, contains an abundance of valuable facts, and should be carefully studied by all who propose to embark in industrial enterprise in Russia. The book will be more fully noticed in a future issue.

#### TRADE OF THE TYNE AND WEAR.

June 16.—A most seasonable arrival of vessels in the North-Eastern ports during the last week has occasioned a fair amount of business in most branches of the coal, iron, and timber trades. There have been large deliveries of timber at Tyne Dock and other places for colliery and other purposes, and of esparto grass, for paper-making, while the exports of coal, iron, and machinery have been on a good scale, if not quite up to the very large quantities sent away weekly lately. The exports of coal during May show a large increase at all the leading North-Eastern ports, the total in May having been 561,890 tons, as compared with 438,953 tons in May, 1869. The quantity of coke sent away abroad was also considerably above the quantity sent in May last year. The quantity of coal and coke sent coastwise does not differ materially from the quantity sent in May, 1869.

**THE BACKWORTH STRIKE.**—A number of men arrived at this place from Wolverhampton on Wednesday week, having been engaged to fill up the places of those who had got work at other collieries in the district. About 100 arrived, mostly young men; and as is often the case when those conditions of take place, they are at least the majority of them appear to be, wrong sort of fellows, rather more intent on amusement and frolic than real hard work. However, they were well received at Backworth, and no doubt many of them will learn to work this seams of coal, and settle here permanently. It is certainly very creditable to the old hands that they have shown no bad feeling, and it is not likely that any disturbances will take place on account of their introduction.

Another dispute, of a serious character, is now apprehended at Burradon Colliery. At these extensive works, where it will be recollected a most serious explosion occurred a few years ago, the men have given notice (the usual monthly notice) that they wish to have an advance of 2d. per ton. This notice was given on June 7, and it is feared at present that when this notice expires, on July 7, a strike may take place, but this may possibly be prevented. It is stated that the men at the Burradon Works, where a large number are employed, are earning large wages. This is, indeed, a fact which cannot be disputed; however, it appears that a section of the men have determined to attempt to get an advance.

On Monday last the annual picnic of the Northumberland miners was held on the seashore, near Blyth. An immense number of miners, their families, and friends, attended the gathering, not less than 15,000 persons being supposed to have been present. No less than twelve musical bands attended, and their performances conducted much to the enjoyment of the people. Although the gathering is not supposed to be arranged for the consideration of business matters, but more of the character of a social gathering, yet it is a custom for the leading members of the Miners' Union of this county on this occasion to address the older miners assembled on the state of affairs, and this meeting was remarkable for the number and character of the persons who delivered addresses. Mr. John Nixon, President of the Miners' Union, addressed the meeting. He stated that the balance-sheet showed an increase in the funds of the association being in March, 1870, £5000, against £2944, in March, 1869. Besides the ordinary current expenditure during the year, there had been voted upwards of £800, towards assisting other districts. Allusion was made by Mr. Nixon and others to the gambling which is carried on by some of the pitmen, and a hope was expressed that these remarks would lead to some reformation.

Mr. Burt made some remarks on the Mines Inspection Bill, which he considered to be the whole, to be worthy of their approval. He, however, regretted that the Government had not pushed the Bill more during the present session, while he admitted that many important and urgent matters had engaged the attention of Parliament. He also alluded to the Backworth strike, and condemned in strong terms the conduct of the masters in ejecting the men from their houses there; and his remarks on this head are so illogical and absurd that nothing but prejudice can account for them, in our opinion. He, however, advocated arbitration as a mode of settling all disputes between masters, servants, and men, as this mode has been resorted to with success in the iron trade there is no reason why it should not succeed equally well in the coal trade. Mr. McDonald also addressed the meeting, and spoke of his efforts in promoting the Mines Regulation Bill, now before Parliament. He pointed out what he considered defects in the Bill, but expressed his opinion that it will pass during the present session; but, if not, they would get a better Bill next session. Amongst the defects of the Bill he said that the clause providing for the education of miners' children was omitted, and that the defective system of inspection which prevailed would not be remedied by the Bill.

#### REPORT FROM SCOTLAND.

June 15.—The market for Pig-Iron has been very active all the week, but has fluctuated considerably. On Friday quotations dropped to 59s. 9d. cash, then rallied to 60s. On Monday the opening was easier, and after 60s. had been paid there was a fall to 59s. 9d., and a rally to 60s. at the close, with heavy buying. Those outside the trade, who are buying up makers' stock of pigs, and sending them into store at the present rate of 1600 tons a day, mean something; and, although they deny all intentions of "rigging" the market, there are grave fears entertained here that if this game is persisted in the market will get "rigged," and serious losses will have to be borne by somebody. Yesterday, 60s. 6d. cash, and 60s. 9d. a month, were the ruling quotations, declining on late change to 60s. cash, and 60s. 3d. a month. This morning the market was quiet, and 59s. 10d. cash was taken; afterwards 60s. cash, and 60s. 4d. was paid; closing, sellers, at these prices, buyers 1d. per ton less. Coltness, No. 1, 68s.; Gartsherrie, 67s. 6d.; Shotts and Langloan, 62s.; Edgington, 60s.; No. 1, g.m.b., 60s.; No. 3, 58s. 6d. Market sensitive and variable. The shipments of pig-iron from the Scotch ports for the week just ended amounted to 12,730 tons, against 11,890 tons in the corresponding week of last year, which makes the increase on the year to date amount to 24,620 tons. The increase in the imports from Middlesbrough for 1870 is close on 9500 tons, with contracts for heavier deliveries during the remaining months of the year.

June 16.—To-day business in Pig-Iron was more animated, and a large quantity of "warrants" were paid for and removed from the market, which is, perhaps, as conclusive proof as we can have that a "rig" is impending. The price paid this forenoon was 60s. to 60s. 2d. cash, and 60s. 3d. to 60s. 6d. thirty days. In the afternoon business was done at 60s. 4d. prompt, 60s. 5d. ten days, and 60s. 7d. a month; closing, sellers, 60s. 5d. prompt, and 60s. 8d. a month; buyers a shade less.

Malleable Bars very firm, and buyers willing to pay any reasonable advance, but iron cannot be had. If the English makers show a disposition to draft off puddlers and millmen from their district, merchants here will immediately stop sending orders south, and will endeavour to get all their contracts postponed for a time.

Finished Iron maintains its price in this market, but ship-iron is less in demand, as shipbuilders have their contracts for the year negotiated, and it is too early yet to look for specifications for 1871 to any extent. The puddlers' strike continues with something like pertinacity, neither employers nor employed being disposed to bow to fate. This week notice has been given by the largest malleable firm in Scotland that if the puddlers do not return to work by the 25th inst. they will lock up their works, both at Motherwell and here; and if this does not effect a settlement of the dispute other firms will follow their example, thus the entire trade in malleable iron in Scotland will be brought to a stand. The districts are already suffering from the effects of the strike, partial though it is. What will be the privations and sufferings whole district will have to endure when every rolling-mill and puddling-furnace in Scotland is at rest? Orders are leaving this district every day for the South. A monster meeting of puddlers, headed by a brass band, was held on Wednesday, in the Temperance Hall, Coatbridge, when a procession took place. Of course, the object was to produce an impression favourable to their case, but beyond impressing themselves with its importance no other impression was made. Mr. Cain, one of the leaders from the North of England, having been called to the chair, addressed the men at considerable length. He urged them to endeavour by all means to get the masters to settle the dispute by arbitration. To achieve this end, he proposed that a deputation should visit the various masters, and obtain answers from each individually. If this failed, the men should seek employment elsewhere; and the North of England masters, he alleged, had employment for a considerable number of extra hands. Various other speakers addressed the meeting, urging the men to continue steadfast, and victory would be certain, but the tone of the meeting was less commanding, and more conciliatory than those held previously. It is rumoured that Mr. Cain had an interview with the puddlers here to-day, and that he recommended them to resume work forthwith, and he would endeavour to see the whole of the makers of malleable iron in this district, to urge upon them the expediency of submitting the matter in dispute to arbitration. We are not sure that the masters will agree to this, but this close contact may lead to an arrangement of the difficulty, as the majority of the men are heartily sick of the present state of matters, and perhaps the employers are feeling much the same.

The moulders of engine castings, being generally skilled workmen, have made a demand for an advance of 2s. per week on their wages; and, as the request. The moulders of pipes, railway-chairs, and the less artistic articles of the trade, are also included in those making the demand; it is, therefore, very evident that labour seems disposed to vigorously assert its right to regulate and control the profits of capital, if by any means it can attain it.

Shipping Coals maintain their demand, but prices are very elastic. The shipments show an aggregate of 37,715 tons for the week just

closed, against 22,885 tons in the corresponding week of last year. Best house coal seems to have no outlet beyond local demand, and prices are maintained, because the dribbles could make no impression on the market either way. A brisk demand would bring down prices to effect a satisfactory business to any appreciable extent. The colliers employed at ironmasters' pits have very generally received an advance of 6d. per day, which places them on a level with those working to the sale coalmasters.

The small estate of Gockstone, near Paisley, which contains fire-clay and other minerals, has been purchased by Mr. John Young, of Fulwood, for the sum of £4500.

Shipbuilders are all very busy, and we notice the launch of a handsome-fitted steam yacht for the Earl of Wilton, of 450 tons, old measurement.

The annual meeting of Young's Paraffin Light and Mineral Oil Company (Limited) was held on Wednesday, at the company's office here, when a report by the directors, with the balance-sheets for the year ending April 30, was submitted. A profit of £5,316, 14s. had been realised, from which there fell to be deducted several sums, for interest and depreciation on the works and pits, leaving for division a net sum of £7,112. A dividend was declared at the rate of 10 per cent. per annum, and £5000, was placed to the credit of the fire insurance fund, leaving a balance of £777, 17s. 3d. to be carried forward.

#### REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

June 16.—The Iron Trade is rather quieter in South Staffordshire just now. The orders on hand are not of large amount, and as the end of the quarter approaches there is usually a slight disposition to hold back, so that there is a little less activity. If, however, the withholding of specifications is in any degree prompted by a hope of lower prices it is likely to be disappointed. Pig-iron is rising. The Barrow hematite producers are asking 47, or an advance of 2s. 6d. per ton, and as the price of foreign pigs determine the rate in the district it is not unlikely that Staffordshire pigs will be stiffer. Best all mine hot-blast are now at from 37, 15s. to 37, 17s. 6d., and 47, is asked in some cases. With pig-iron at such prices finished iron cannot be produced at lower rates, and should the present hot weather last the make will be reduced. Looking at the demand for rails, and the probability of more being wanted, it seems reasonable to hope for better prices next quarter. A new furnace has just been blown in at Tipton Green, and another now in course of erection at Dudley Port will soon be ready for work.

When the dreadful accident occurred at Talke, in North Staffordshire, the committee formed to provide for the relief of dependent survivors were, very properly, not satisfied with merely providing for the case, but desired to establish a fund for the purpose of forming the nucleus of a permanent fund to which miners should be invited to contribute, and thus entitle themselves and those dependent on them to certain specific benefits in case of death. In a letter to the *Staffordshire Advertiser* of Saturday, the Rev. Sir Lovelace Stamer, rector of Stoke-upon-Trent, who has taken a great interest in the question, writes to explain the position of the matter. It appears that with 1500, handed over by the Mansion House Committee 3000, was available for the proposed benefit society. Rules have been carefully prepared, and after consulting Mr. Nelson, of Great James's-street, Bedford-row, London, the committee are able with full confidence to offer that for a payment of 2d. weekly a married man, in case of his death by accident in or about coal and ironstone mines, can secure for his widow 4s. a week for the first five years, and 2s. for the second five years, and for each child under age 2s. a week, while in case of his own disablement through accident he will receive 6s. a week for the first five years, or for such portion of five years as the disablement lasts, and if the disablement should continue longer than 3s. a week for such further time as he is unable to follow his employment. Sir Lovelace acknowledges that the miners do not show any great desire to avail themselves of the benefits thus offered to them, but some progress is being made, and he adds:—"One thing is certain, I think. When the public are made aware that for a weekly contribution of 2d. such provision as I have named can be made by the well-paid colliers and ironstone workers of this district for themselves, their wives, and children they will hesitate before they contribute for their relief on the occurrence of great accidents as they have done hitherto." It is a matter of regret that at present the miners in South Staffordshire are making very little progress towards raising the 500, which will entitle them to a similar disposal of that part of the balance of the Hartley Fund which was assigned to the district.

A curious case came before the County Court Judge at Wolverhampton, on Tuesday. The *Birmingham Post* states the case:—Messrs. Jones and Jepson, of Wolverhampton, are contractors with the corporation for that town for the construction of certain sewage works. In the course of their excavations the other day they came upon some sand, and, as their contract provides that all earth not needed to fill up the trenches shall "be carted away and disposed of by the contractors with all convenient speed," they lost no time in selling the sand to a private customer. Now, though the land on which this discovery was made had been legitimately acquired by the corporation, the purchase did not include "mines and minerals," the property of which remained vested in the original owner, Mr. Loveidge. The latter accordingly laid claim to the sand as a mineral, and called upon the purchaser to pay its value to him, and not to the contractors, of whom he had obtained it. On behalf of the contractors, it was urged that the sand was not a mineral in the sense in which such deposits are distinguished from the land in which they occur, and that they were obliged by their specification to remove and dispose of it, or they would have been subject to a fine for stopping the work. It was further pointed out that, according to trade usage, the miner employed to open a pit-shaft was entitled to everything he excavated, and the only difference between his work and that of the sewage contractors was that the former cut perpendicularly and the latter horizontally. The Judge decided for the contractors, observing that if the owner of the freehold had any claim it was against the corporation who took the land, and not the contractor. [Some remarks on this subject will be found in a Leader Article of this day's Journal.]

The Dudley Correspondent of the *Wolverhampton Chronicle* writes:—

We are now far advanced in the quarter, and ere this fully expected more activity, but what improvement has taken place is far from being general. Prices for second-class productions are somewhat higher, but are even now far from being remunerative. First-class houses rigidly adhere to the list prices, but the orders received are of a comparatively meagre character, and, as a consequence, the proprietors have some difficulty in keeping their works in regular operation. Any person who will take the trouble to reconnoitre the district will find that there is anything but the general briskness which some would have us believe exists in the trade. The demand for pig-iron keeps very good. All mine, hot-blast, is realising from 37, 15s. to 37, 17s. 6d., per ton, and in some instances 47, 12s. 6d. per ton. There is, however, of the latter sort made in South Staffordshire. Grey forge and white forge, cinder pigs, and also ordinary melters are stiffening in prices, and are likely to do so, as the Scotch pigs are sufficiently high to prevent anything like competition with this district, which tends to confirm the idea that the producers of pig-iron in these localities will be enabled to command higher rates—a desideratum devoutly to be wished, for their scale of profits for many years past has been anything but satisfactory. The weekly produce of pigs in South Staffordshire and East Worcestershire is about 14,200 tons. This is not sufficient for the requirements of the district, especially when we take into account what is necessary for the various foundries, as well as the whole of the mills and forges now in operation. Little has been done in the collieries during the week. The pits, however, are now at work again, and as the output is rather large the demand will soon be supplied. There is a growing enquiry for gubbin and white ironstone. The price of the former is 13s., and of the latter 12s. 6d. per ton of 2240 lbs. When sold at long weight it is proportionately higher, according to the weight and number of pounds to the ton, as may be agreed upon by the purchaser, but there are some who decline to sell any other weight than the Imperial standard.

The SOUTH STAFFORDSHIRE AND EAST WORCESTERSHIRE INSTITUTE OF MINING ENGINEERS have arranged to start upon their Belgian excursion on Saturday morning (June 18). The party will visit Antwerp, Brussels, Mons, Charleroi, Namur, and Liège, devoting nearly three days to the examination of the coal field, the distance across which is about 100 miles. There are 157 seams of coal, varying from 10 in. to 3 ft. in thickness, and it is said there are 120 workable seams in the Belgian coal field. The celebrated Coal shaft, at Viviers Réunis, near Gilley, is 1137 yards deep. The excursionists will return to London on Wednesday, June 29.

#### SOUTH MIDLAND INSTITUTE OF MINING, CIVIL, AND MECHANICAL ENGINEERS.

The annual meeting of this Institute was held on Monday, at the School of Art, Wolverhampton—Mr. HENRY BECKETT (Chairman) presiding. Amongst the members present were Mr. J. P. Baker (Her Majesty's Inspector of Mines for the district), Mr. E. Jones (mining engineer of the Lillishall Company), Mr. James Cope (hon. sec.), T. Rose, S. Bowkley, W. Blakemore, J. Randall (Ironbridge), D. W. Lees, John Foster, A. Bowkley, H. F. Griffiths, W. Smith, J. W. Baker, C. Greene, J. Bromley, W. Parton, T. Hawkins, T. Price, J. Williams, B. Guy, and others.

On the motion of Mr. BAKER, seconded by the SECRETARY, the following gentlemen were elected members:—Messrs. James Slater, collector, Darlaston; G. B. Thornycroft, Tettenhall Wood; R. S. Walker, Preston; Reuben Turner, Wolverhampton; Edwd. Phillips, Deepfields; Joseph, John, and Edwd. Hawkins, Wyrley; Thomas Fellows, Moxley; Thomas Millington, Wednesbury; Thomas Southan, Donnington; and Edward Shenton, Bilbrook. This election, the President remarked, would make the members a total of 123.

The PRESIDENT read the following communication which he had received from Mr. F. W. Gerhard, with whom he had had many interviews, and respecting whom the Secretary had received highly satisfactory letters:—

"Sir, I have briefly enumerated the nature of the experiments with which I have been engaged for some years past—in the metallurgy of iron.—A mode of desulphurising coke and desulphurising iron ore for the purposes of making

pig-iron from the materials produced in this country equal in purity to Swedish or Russian iron.—A more perfect system of combustion, whereby a saving of fuel in the production of iron of from 3 to 50 per cent. is economised.—A simple and inexpensive mode of converting pig-iron into wrought or malleable iron without the aid of puddling, the expense of which will not exceed 2s. per ton.—A smokeless furnace, the consumption of slack, which can be adapted to puddling or other purposes.—F. W. GERHARD."

Mr. Gerhard, the President explained, was unable to utilise his invention himself, and he (the President) thought it well to bring the subject before that meeting, in order that the members or their friends might have an opportunity of putting themselves into communication with the inventor, for the subject appeared to be of great national importance.

The meeting adopted a minute of the last council meeting, which, owing to the rates requiring considerable revision, suggested the re-election of the officers of the past year, excepting only the President, from whom there was a notice on the paper calling the meeting, to the effect that he should nominate the Government Inspector of Mines as President in his stead.—The meeting adopted the minutes; and then Mr. BAKER proposed that Mr. BECKETT should be desired to honour the Institute by continuing its President.—Mr. E. JONES seconded the selection of Mr. BECKETT.

Mr. S. BOWKLEY reminded Mr. Baker that, with Mr. BECKETT's notice on the paper, the proposition had placed the meeting in somewhat of a dilemma. It was in every respect desirable, as Mr. BECKETT had felt, that the Government Inspector of the district should be at the head of the Institute. The services which the representative of Government could render them in that capacity were very great; and he hoped that Mr. Baker would concede to Mr. BECKETT's wish, and take the head of the society. They were all immensely indebted to Mr. BECKETT for the assistance, and the counsel, and the professional knowledge with which he had advanced the interests of the Institute, which they all well knew were dear to that gentleman. Of this there could not be a more striking proof than that furnished by the motion which contemplated the election of Mr. Baker to the post which had in every way been conspicuously graced by himself.

Mr. BAKER said he did not wish to embarrass the Institute; and, yielding to what was understood to be the great desire of the members, he withdrew the proposition he had made.—Mr. BECKETT thanked Mr. Baker for thus making their course easy, and moved the resolution of which he had given notice.—It was seconded by Mr. BOWKLEY, and adopted amidst applause.—Mr. BAKER, in responding, promised the customary inaugural address at the next meeting.

The Council were then desired to revise the rules, and report to a special general meeting to be called for the purpose.

Mr. BECKETT then made known that he and the hon. sec. had inspected Baggaridge Wood in connection with future explorations for coal, and Mr. F. Smith, Earl Dudley's agent, had promised to see him upon the subject. He then stated that he had received a boulder of slate that had been found in the clay at Blakenall. The discovery demonstrated an exceptional state of things for South Staffordshire, and he and the hon. sec. had gone to the site. They found it to be a cutting in connection with the sewage operations of the borough. The works were evidently being carried through the fault which had been marked down as likely to exist thereabouts. The discovery was also important and interesting in that it defined the position of the fault, and formed a caution-boundary in respect of new sinkings.

Mr. BAKER announced that he had seen Mr. Stokes, of Saredon. That gentleman thought that if he gave the Institute the sections of the sinkings that he had made there he ought to be compensated. Mr. Stokes had no objection to see a deputation from the Institute. Mr. Stokes had gone down 60 yards. He had got through the red ground, and stated that the last 20 yards were characterised by most favourable evidences. Mr. Stokes fully believed that coal would be found at Saredon.—The hon. sec. notified that he would have the committee to whom the matter was deputed conveyed to Saredon next Monday.

Mr. RANDALL, in reply, furnished information (the substance of which has already appeared in the *Mining Journal*) respecting the new sinkings at Market Drayton. Mr. Beckett fervently hoped that their friends would get on prosperously with their undertaking for proving Sandwell Park, where he had every confidence that they would find the thick coal. Not (in reply to Mr. Bowkley he added) in solid, but split up, in which condition it was more valuable, inasmuch as it could be worked with more economy. The hon. secretary believed that they would find the coal, but at 700 yards, probably.—The GOVERNMENT INSPECTOR: Why, not at 1000 yards? If they have increased the depth from over 300 to 500, and you say it will not be found under 700 yards, to advance to 1000 yards would be only a step.

On the motion of Mr. BOWKLEY, seconded by the GOVERNMENT INSPECTOR, and amidst the applause of the meeting, Mr. Beckett was thanked for his many and great services as President.—In responding, Mr. BECKETT congratulated the Institute on having a man of Mr. Baker's eminence at its head, and expressed a hope that he would fill the post for many years; and said he trusted that their Dudley friends would soon join them. The South Midland Institute was increasing its members rapidly, and they were located over very wide districts—indeed, extended even to America. He could not see why the present 123 should not enlarge to 1000. (Applause.)

The Institute then adjourned to the annual dinner, which took place at the Star and Garter Hotel. The President elect was in the chair, and several excellent speeches were made.

Mr. JONES, of the Lillishall Company, as Vice-Chairman, after some general remarks, referred to the interesting topic of the South Staffordshire and Shropshire coal field, and the probabilities of further resources still to be found than those which are already known to exist. He said there was no doubt that the two counties had been operated upon for a very long period of years. His own county, for upwards of a century, and this county for certainly a not less period, and yet up to the eleventh hour—notwithstanding fears expressed by some to the contrary—we had managed to hold our own, and were doing even more now in certain tracts than at any previous date. He knew, for instance, of places that were at one time thought to be thoroughly exhausted and worked out, which had recently been tried again, and at the present moment were yielding more for the community at large, and for the benefit of their owners, than they did a century ago. On the other hand, new seams were being developed from day to day, and from year to year. It was true the development of them was a much more costly process, with modern science and modern skill, it was ascertaining how far we could go for a little money. It was surprising how far a little money had gone in his own particular district. It was astonishing how far they had gone, and to depths as great as in some of the North of England places, but at much less cost. Take, for instance, the Monkwearmouth Colliery. There at first the original promoters spent no less a sum than £250,000, and afterwards £300,000, was expended by the succeeding proprietors, who took up the work, and he knew, from his own experience, they had got down to some of the best coal in the country.—In fact, at the present time the Monkwearmouth Colliery was one of the most profitable commercial speculations going. In his own district, however, they had produced as good results with much less money. Take, as an instance, the Granville "windings." There they sank on and on, and when they were within even a few feet of the mineral they were searching for, cold water was thrown upon the scheme by people in the immediate neighbourhood, and yet within six weeks of that time they came upon the richest coal the country ever produced. They went on sinking for five years without a single accident, and yet he did not think the entire cost of that and the subsequent sinkings they had carried out had exceeded £60,000. Notwithstanding that up to the last they had very little to encourage them, yet they felt themselves in duty bound to go on, and he was happy to tell them that those sinkings had been even more successful than was at first anticipated. Then, as to the question of extension, a question that had often been discussed, and was just now exciting a great deal of interest. He might tell them that the Lillishall Company had the power to work the coal to within a mile east of Staffal, and he believed that company were the only parties who were likely to get the coal in that direction, for they had the whole line in the direction of Madeley. There they came to a denudation east of the present sinkings, and he was sorry to hear that they had come to a downthrow east of this locality, but he hoped that a lower series of coal would be found. How far, however, the denudation might be found in the direction of Staffal, and the north-east part of the coal field, remained to be seen. It was only a question of time, as the present extensions went on week by week, and year by year, to prove whether the theories that had been expressed as to further developments were correct, and he trusted the Council of that Institute, guided by the best modern views of the best modern men, would use their utmost exertions to thoroughly prove the district around them. If, as was surmised by some, that the coal field in Shropshire was found to extend pretty much in the solid from that district to Cannock Chase, it would then give them as much mineral as would supply the wants not only of this generation, but of generations to come. He was pretty sanguine in his own mind that the search for more minerals would be more likely to be attended with success in the direction and district to which he had alluded than in this. He did not think the Parliaments would be found very thick. Time would prove it, money would prove it, and he only hoped that some of them might live to see the operations carried out that would fully test the correctness of the opinions expressed. (Hear, hear, and applause.)

The opinion was almost universally expressed that the Institute would work great benefit to the staple industries of the district, at the same time that it advanced the science of mining, civil, and mechanical engineering over an extended area.

DUDLEY AND MIDLAND GEOLOGICAL AND SCIENTIFIC SOCIETY.—Mr. Frederick Smith, M.A., presided at the annual meeting of this society, held in Dudley, on Tuesday, and among those present were—Prof. Beckett, Messrs. E. B. Marten, H. Burton, W. Spruce, J. Cole, S. Bowkley, E. Hollier, W. Masfield, J. Renaud, Jun., J. Williams, C. Keley, S. Griffiths, and many other gentlemen. The report of the committee showed that there were 24 members on the books, and intimated that the whole of the Transactions of the society would soon be ready. In conclusion, the report regretted the sudden decease of Prof. Jukes, and expressed an opinion that geological science had sustained a great loss by his death, which was to be deplored the more on account of the deceased gentleman's kindness and thorough knowledge of that district. The report was adopted. The Earl of Dudley was re-elected President; and the following gentlemen Vice-Presidents:—Mr. J. P. Baker, Her Majesty's Inspector of Mines, Mr. Beckett, Major Fletcher, Mr. B. Gibbous, Mr. W. Matthews, Mr. F. Smith, Mr. E. F. Smith, Mr. G. Taylor, and Mr. C. Towler. The committee were then re-elected, with the addition of the names of the Rev. H. W. Crosskey (Birmingham), and Mr. Terry, Jun. Mr. E. Grainger was re-elected treasurer, and Mr. W. Madeley secretary. It was determined that the



### Notices to Correspondents.

**VAN.**—Holding, as I do, a large interest in this mine, may I venture to enquire of you what my real position is, and if when the new shares are fully paid they will rank *pari passu* with the existing issue, take the same dividend, and command the same value?—A. SHAREHOLDER: *Maldon.*—[In reply to numerous enquiries of a similar character, it may be stated that at the end of the year, when the shares are fully paid, they will rank for dividend and command the same value as the existing issue.—ED. M. J.]

**CRUSHERS AND STAMPS.**—As there appears to be no work published containing detailed descriptions of the several kinds of crushers and stamps, both steam and rotary, used in Cornwall, I would suggest that it would be very interesting to those of your readers who have never had the opportunity of seeing them working if some of your Cornish correspondents would supply particulars of the kinds most commonly used, and the relative merits of each.—M. G. M.: *Bristol.*

**THE LARGEST IRON WORKS IN ENGLAND AND WALES.**—Can any of your correspondents inform me through your columns which is the largest iron works in England and Wales? I wish it to be understood that I refer to one single works, and not to one company of proprietors having works at different places several miles from one another.—J. B.: *Bristol Ferry.*

**VOLUNTARY LIQUIDATORS.**—“X. Y. Z.”—There is no fixed rate of commission, charges, &c., allowed by law to the liquidators for winding-up voluntarily a limited company. By section 133 of the Act the company in general meeting must fix the remuneration to be paid to him, and by section 144 all costs, charges, and expenses properly incurred in the voluntarily winding-up of a company, including the remuneration of the liquidators, is to be paid out of the assets of the company in priority to all other claims.

**LEAD MINING IN WALES.**—We do not know of the East or West Van—there is a South Van.

**CALIFORNIA.**—“T. F.” (Grass Valley).—The address of Col. O'Connor Sidney is not known. He has been in Paris during the past few weeks. When he returns to London will write.

**NORTH CARADON.**—We shall publish all the details when the proper time arrives. At present it would be premature.

**SHARE DEALING.**—We never interfere in the sale or purchase of shares; neither do we recommend any particular mine for investment or speculation, or broker through whom business should be transacted. The addresses of most of the latter appear in our advertising columns.

## THE MINING JOURNAL, Railway and Commercial Gazette.

LONDON, JUNE 18, 1870.

### OWNERSHIP OF MINERALS FOUND IN EXCAVATION.

A subject of great importance to mining engineers and mineral owners, arising out of a claim to sand, has recently been tried in the Wolverhampton County Court. The point was, to whom certain sand met with during an excavation belonged—that is, whether to the landowner, who had licensed the town corporation of Wolverhampton to make the excavation for sewerage purposes, or to the contractors who, by virtue of their contract with the town corporation, had agreed “that all earth not needed to fill up the trenches shall be carted away and disposed of by the contractors with all convenient speed.” The learned judge who tried the case, after due consideration, adjudged in effect that the contractors were the absolute and beneficial owners of the sand excavated, and that the landowner was not entitled to claim either the sand or its value, from either the contractors or the persons to whom they had sold it.

It seems to us that the learned judge was quite right in his judgment; and although the grounds of such judgment are not before us, yet we think it is safely supported by several well recognised legal principles, the chief and obvious one being that as the landowner had licensed the excavation so he had also impliedly licensed all the usual ancillary powers and acts necessary to the due execution of his licence. What, we ask, would the landowner have said if, instead of valuable sand, barren earth or rock had been excavated, and he had been requested to cart it away from the works? We think his answer would have been a refusal; and that if he had vouchsafed any reasons he would have said, “I have indeed licensed the excavation, but I have not in any way contracted to clear away your rubbish.” Or, “I cannot find it; 'tis not in the bond.” Or supposing the contractors had left the excavated earth on surface, would not the landowner have demanded its removal? We think he would, and that the law would have enforced his demand, if called on so to do.

As regards the contractors, they, doubtless, when making their estimates speculated at least upon getting rid of part of the mineral at easy terms, even if they did not contemplate making something handsome by it; for we have reason to know that in London sewer contracts, if there be no stipulation as to the gravel the contractors calculate upon it as part profits. But in the case before us what was there to prevent the contractors filling up the trenches with the sand instead of with the rubbish? Nothing. In such a case it is clear, even to concession, that the contractors would not have been liable to the landowner in damages for such an act. If we are right in this, then the contention of the landowner must be, and is, that the contractors might have destroyed the sand by filling up with it, but if they saved it they saved it for him, the landowner. Such a contention seems to us to border on the absurd.

In truth the landowner should, when granting his licence, have reserved his right to the sand by a positive reservation, in which case the corporation would have varied their contract with their contractors, and the contractors would, in all probability, have varied their price in order to meet the new condition. As it is, the landowner's default ought not in justice to work a pecuniary loss to innocent contractors, and we rejoice to find that the learned judge has been able to resolve the above interesting point consonantly with, as it appears to us, equity to all parties.

### WHAT MINERALS ARE LEFT IN THE OLD COAL FIELDS?

The solution of this query involves considerations of grave moment to very many readers of the Journal. These entertain very different views as to what yet remains to them. Their estimates partake of their respective idiosyncrasies. Are they men whose habit of mind is least marked by hopefulness, then they are inclined to regard the old districts as all but worked out. Are they of the cheery hope-on-hope-ever school, then they laugh at the forebodings of the doleful, and believe that in the old fields there is many a fortune yet to be made. These latter have our sympathy.

As in the agricultural operations of this country a good crop is not to be obtained by merely scratching the earth's back with a plough, but by persistent deep furrowing; so the days of open workings and of shallow sinkings may have well nigh come to an end in the old colliery districts, and fortunes be now obtainable only, in many instances, by going over previously wrought ground. “Going over old ground, why we've been going over old ground for years, and, excepting what is under water, there's hardly a bit of coal the size of a nutmeg left.” Thus we can imagine the colliery proprietors of the foreboding class responding to the cheery. Exactly, “excepting what is under water.” But why leave it under water? “Because I am not going to spend my money in draining my neighbour's property,” he rejoins. And, then, still reluctant to believe that the future may in any respect worthily approach the past, he adds—“Besides, there is no certainty that what may be found will repay the cost.” Leaving the first objection for a moment, without denying that it has some extent of reason in its favour, let us make known what one of the foremost men in a notoriously old field has just said.

Last Monday the South Midland Institute of Mining, Civil, and Mechanical Engineers held their first annual meeting in Wolverhampton. At the dinner in the evening Mr. E. JONES, the mining engineer of the Lilleshall Company, of which it will be remembered Earl GRANVILLE is chief, speaking from his place as Vice-Chairman, made prominent allusion to the often-uttered assertion that Shropshire and South Staffordshire are within but a trifle of being irreversibly used up. He admitted that as they went on working they found a need-be for increased exertion in seeking further supplies, but denied that these exertions, when they were made thoughtfully and skilfully, were fruitless. On the contrary, he claimed for them that in notable instances they resulted in conspicuous success. One of the most recent was that in which old workings, for long years

flooded, had at length been drained, and were now yielding returns far surpassing those which accompanied the early winning.

But it is not merely to the releasing of submerged mines that the old districts have to look for a prolongation of their existence. Explorations over the acknowledged boundaries, and in doubtful spots within it, will yield much revenue to those who may make them. Upon this point we would again quote Mr. JONES. Taking the same line of argument that we are now adopting, that gentleman would have those mining engineers who, like himself, have to direct operations in old districts by no means despair of coming to fresh fields and pastures new. Citing the Granville workings, and likewise the Stafford pits, he showed how, in respect of the first in particular, the Lilleshall Company continued to sink incessantly, night and day, for five years, against the views of nearly all the “authorities,” local and otherwise. Within six days of the time when their operations were strikingly ridiculed they came upon coal, splendid in quality, and so abundant in quantity that the Granville workings and Stafford pits demonstrated that there was now in the possession of the Lilleshall Company alone enough fuel to supply all Shropshire throughout another century. Further, let it be borne in mind that how much less cost, as compared with former times, such explorations as those just noticed can now be carried on. Including interest of money, the Granville workings—for which Mr. JONES must have the chief credit—cost the Lilleshall Company 60,000*l.* For that outlay it is claimed that a return will be secured even larger than that which will reward the expenditure of some 400,000*l.* at the Monkwearmouth pits, eminently judicious as that great outlay will prove to the courageous and enterprising proprietors who, when a quarter of a million of money had been spent without appreciable results, did not hesitate to follow up that sum with a further 150,000*l.*

They are the most experienced and the best informed who in every district are the most confident as to the future. Mr. JONES would have his fellow-engineers without despair in the old districts. And no less an authority than the present Chairman of the Ironmasters' Association, Mr. RICHARD SMITH, the representative of the Earl of DUDLEY, in speaking in the Dudley Museum, on Tuesday, within only a few hours of the time at which Mr. JONES spoke in Wolverhampton, encouraged his auditory as to the future of that ancient mining ground, and stated that he was about that afternoon to confer with Mr. BECKETT, the ex-president of the South Midland Institute of Mining Engineers, as to the directions in which it was Mr. BECKETT's opinion much valuable thick coal would be found—found, too, in a position which would go far to prove a connection between the South Staffordshire and the Shropshire fields. What, likewise, are we to say of the sinking through the Permians on the Earl of DARTMOUTH's Sandwell estate, about to be begun by a company comprised chiefly of mining engineers, located thereabouts, amongst whom, as amongst nearly all their fellows in that part of the kingdom, the conviction that coal is upon the spot, expressed by Sir RODERICK MURCHISON, is fully shared. With such facts as we have here sketched before them, let *Nit desperandum* animate the mine proprietors and mining engineers of the old coal fields.

### RAILWAYS, AND SOUTH AUSTRALIAN MINES.

The enormous mineral wealth of the northern portion of the colony of South Australia has long been a matter of general remark, yet that wealth has been almost entirely beyond reach, in consequence of the insuperable difficulties of communication. The project of a railway from Port Augusta northward is again attracting considerable attention in Adelaide, and it may be hoped that the local Government will offer sufficient inducements to the promoters to ensure the subscription of English capital for the construction of the line. The *Chronicle and Mail* very truly remarks that the railway will enable the vast mineral wealth of the far North to be brought on reasonable terms to an export market. The great arid belt stretching northward from Port Augusta being bridged over, provisions can be moved up to the fertile pastures lying beyond; stock can be conveyed across the desert, and thus a second source of now undeveloped wealth be turned to good account. Seeing what the Binnam, under all its disadvantages, does already, sanguine anticipations appear justifiable. Meanwhile, it is of the utmost importance to place the mining interest in the most favourable condition possible. There should be no payment whatever to Government until a mine is proved to be remunerative, and then, perhaps, a small royalty upon profits would be the best plan. The latest advices from Adelaide announce the receipt of magnificent specimens of ore from Mount Lyndhurst Mine, some 20 miles beyond the proposed Great Northern Railway terminus, and every day furnishes additional evidence of the mineral wealth of the far North, and consequently of the facilities for a railway company to realise handsome profits.

That there is a great and growing disposition in Adelaide to encourage both railway and mining enterprise appears to be beyond question, and a more effectual means of augmenting the prosperity of the colony does not exist. An intelligent correspondent remarks that it has been the fashion to point to the gold fields of Victoria in explanation of the superior prosperity and activity of the sister colony, but that every man employed at the Moonta Mines adds more gold to the coffers of South Australia than is produced by the average of the entire gold digging population of Victoria, and that quite irrespective of the hands into which the profits of the mine may fall. It is undeniable, he continues, that the country north of Port Augusta abounds in minerals of high quality; the geological formation renders necessary the employment of capital in large sums to develop permanent mines; but the expense, and at times entire cessation of means of transit, are fatal to any great extension of operations northwards. It seems, however, to be admitted, both in South Australia and here, that the line should and must be made, and the sooner it is made the sooner will date the revival of prosperity in the colony.

### LEAD MINING IN SHROPSHIRE.

The success which has attended the more vigorous development of the mineral resources of Shropshire has not a little surprised the general public, who, however, are now awakening to the fact that the lead deposits of the county are second to none in the kingdom, while daily experience confirms the opinion that the prosecution of works to greater depths will prove them to be even superior to their long-celebrated neighbours of Cardiganshire and Montgomeryshire.

The mineral-bearing district of Shropshire is limited in extent, being only about twelve miles long by six miles wide; but this small area embraces a series of mines which taken collectively may, owing to their great and continued productiveness, be said to stand without parallel. Foremost amongst these mines is the one now known as Tankerville, a mine which for years has been the admiration of those conversant with the locality; and now, under new management, and with increased facilities for working, is literally astonishing the mining world by its great returns, entirely the produce of one lode, which, running nearly east and west, and varying in width from 20 to 30 ft., yields an amount of lead ore per fathom ever increasing with the depth of the levels, from 3 tons in the 42 ft. level to 30 tons in the 92 ft. level.

Tankerville cannot be called so enormous a sett, consequently it would be unjust to suppose that the productiveness of the main lode can be confined within its boundaries; in fact, superficial indications plainly show that the lode continues to course to the east in its full strength, and of the same masterly character, accompanied by several others, well known to be productive, of like formation, and running parallel to itself.

The ground into which these lodes penetrate immediately on leaving Tankerville has, during the past week, been secured by influential parties, who purpose losing no time in proving the value of a property that may fairly be deemed to contain the identical elements which, but a few fathoms removed, have contributed to form one of the grandest successes of modern mining.

For the rapid and thorough development of East Tankerville Mine will be secured all the advantages derivable by eminent scientific direction, seconded by sound local knowledge and able management, and the employment of such material influences as it may be found advisable to bring to bear, with a view of insuring for the undertaking a prosperous future. The prospectus and plans of the East Tankerville Mining Company (Limited) will at an early date be

brought before the notice of the public, who will then be invited to co-operate in working what has been described by an able authority as “the choicest piece of virgin mineral ground in Shropshire.”

### COAL-CUTTING BY MACHINERY.

The majority of the coal-cutting machines hitherto introduced have been designed to imitate the process of hiving, as performed by hand labour in driving an ordinary heading, and although considerable difficulty has been experienced in getting them to work satisfactorily, sufficient has been done to prove that whilst in difficult cases hand labour will perform a larger amount of work than the machine, and cannot, therefore, be replaced, there are many cases in which the machine is decidedly economical. From the specification of the recent patent of Mr. ANDREW KNOWLES, of Pendlebury, Manchester, it appears that he proposes to use hand labour for driving the leading headings and machine to undercut the pillars left. His improvements consist in the use and application of an oscillating metallic blade or bar, containing cutters or teeth, which act on the coal, so as to cut a groove or channel of any required thickness, depth, or length near the bottom of the bed of coal, either on the end or face of the mine, so as to facilitate the getting of the coal. The said blade or bar may be fixed in a frame, or supported at each end on a sliding block or bar, and maintained in a state of tension by a weight or spring, if required, or by a piston acting on compressed air in a cylinder. By preference the blade or bar contains numerous slots, in which are fixed the cutters, by means of a key or wedge adapted to each cutter, so as to allow of the cutters being exchanged or sharpened as desired.

The sliding blocks or bars, to which the cutting blade or bar is attached, are each supported on a moveable carriage, situate on each side of the seam or bed of coal to be operated upon; and the said carriages lie on tramways, or other suitable appliances, so that they may move at the same rate as the coal is being cut. One of the carriages has fixed upon it an engine actuated by steam, air, or water, to give the necessary motion to the apparatus, and the pressure required by the cutters against the coal is given and regulated by the action of weights or springs acting on levers or pulleys, or both, through the agency of bands, rods, or chains, or by toothed wheels, or by one or more combinations of the worm and wheel.

When the apparatus is to be put in operation the cutting edge of the blade is brought up to the coal, and by the oscillating action given to it by the apparatus the required groove in the coal is cut, thereby enabling the miner to get the coal with greater facility and with less chance of accident to himself, and allowing the coal to be mined with less waste than usual. It will be understood from the description that the inventor really uses a bow-saw, so that his assertion that there will be less waste than usual will create no surprise; indeed, such a machine as that of Mr. Knowles need not reduce a quarter of an inch thickness of coal to small, and in some of Messrs. Knowles's mines it would, doubtless, ensure additional safety, as they have some very bad roofs to deal with. The machine is especially adapted to the Lancashire system of long work, which may be described as standing midway between long wall and pillar and stall, being much like pillar and stall working, with the pillars the same width, but ten times the depth.

### COAL MINING IN NORTH WALES.

Business in most of the colliery districts is now very fair for the season, the tonnage going to Chester and Birkenhead being of an average character. At the HANMER COLLIERY, where a large feeder of water was recently tapped, and in order to prevent it from overpowering the engine dams had to be put in for the purpose of excluding it—a work of no ordinary character—they have been completed, and the men are now driving out to reach the lower seam of coal.

At the MOSTYN COLLIERY a moderate trade is being done, and it is understood that blast-furnaces will shortly be erected near to the pits, for the purpose of smelting the valuable hematite ore which was formerly worked near Talargoch, up to about three years ago. At that time it had been carted for shipment to Mostyn, at a cost of about 3*s.* per ton; but as a line of railway runs rather close to the stone it could be conveyed to the furnaces, it is believed, at about 1*s.* per ton. The great interest which has been shown in the sinking by means of pneumatic power, and in diving-bell suits at Bagit, may be said to have been brought to a close. Having got through the sand and gravel on to solid material, at a depth of about 30 yards, the pneumatic tubes have been taken out, and pumps for getting the water out are about to be put down. It is now believed that the most serious difficulties have been overcome, and that the work of sinking will be proceeded with in an expeditious and satisfactory manner. The colliery will be about the largest in the kingdom, the shaft being fully 20 ft. clear in diameter, and the bed of coal to be worked lies well-known Five yard seam.

At the BAGIT COLLIERY, which is now under the management of Mr. Gildery, of Queensferry, a good deal of both coal and clay is being raised, the latter being of a fine quality, and got at the same time as the coal at Flint Marsh; also a moderate business is being done via the London and North-Western Railway, with which the colliery is connected.

The collieries in the Mold district are now doing about an average trade for the season. At COPPA both ordinary and canal coal is being raised, and the owners, the Messrs. Thompson, of Rhyl, are applying for extra ground, and which from the high reputation of the firm there is little doubt will be granted by the lessors, the lords of Mold, we believe. There are some extensive oil works close to the pits, which use a considerable quantity of canal, which is of a fine quality. The DRON COB COLLIERY is finding employment for a large number of men, and is sending a good deal of coal to Birkenhead for shipment from there. At BROWFIELD HALL the water having corroded the bottom new ones have had to be fixed in place of the old ones, and they have put down a wheel, so as to get a different supply of water.

Several of the collieries in the Buckley district are now looking more promising than for some time past, and with the transit facilities which will shortly be in operation the locality promises to become a really important one. At ASTON HALL, of which Mr. Gladstone, the premier, is the lessor, a moderate business in coal is being done. A large quantity of capital is also being raised, for which there are extensive works for converting iron into bricks, tiles, &c., and for which there is a very good demand. The BIRON GILLESPIE COLLIERY is working steadily, supplying the leading brick and tile works in the neighbourhood, of which there are several very extensive ones. It is expected that the seam being worked will be reached by drifting through in another part of the land.

In the neighbourhood of Queensferry the collieries continue to be kept very fairly going. At the PRESTATYN COLLIERY, which was very successfully sunk under the immediate superintendence of the manager, Mr. Gildery, a rather better trade is being done. The coal has just been analysed by Mr. W. B. M'Allister, of Liverpool, and the results have been highly satisfactory. The sample sent produced 27.0 per cent. per cwt. of clinker, 11.5 lb. of 100 per cent. ash per cwt., the average being 48 cubic feet per ton required per ton of coal. For marine purposes, Mr. M'Allister says it is of No. 1 quality. At the QUEENSFERRY COLLIERY, belonging to Messrs. Thompson, the two shafts have been got down, and the cages are now being put down, and the levels are being driven out.

In the Wrexham district there is not much change to be noticed in the business doing, which is of a very fair character for the summer season. The CARPENTY COLLIERY is about to change hands, some of the elder members of the firm being desirous of retiring. At the SANDICROFT IRON WORKS, near to Queensferry, owing to the extension of mining operations in the locality, a good business is being done. A large quantity of machinery is also being exported from the establishment, which has long been noted in the district, and from which the unfortunate Royal Charter was launched.

**DEFECTIVE BOILER FLUES.**—Mr. PETER HIGSON, Government Inspector of Mines, has written as follows upon a recent explosion:—“The flue of one of the steam boilers of the Holme House Colliery, near Wigan, belonging to Mr. Ralph Kinner, suddenly collapsed when the men were absent. If the works had been in full operation the loss of life might have been serious. The flue was 3 ft. diameter, and made of 7-16 in. plates, which were in apparently good condition. The average pressure was under 50 lb. on the square inch. The flue had no inner or outer rings or straps of any kind to prevent collapse. No boiler flue that has to bear high pressure steam should exceed 2 ft. 8 in. in diameter, and even then it should have rings outside, at the distance of 4½ ft., or at every other point, of angle or T-iron. It is to be hoped that this will be a warning to others.”

**THE MINERAL RESOURCES OF RUSSIA.**—Although the mineral resources of Russia are known to be enormous, and such names as that of Demidoff enjoy an almost universal reputation, comparatively little is known concerning the individual districts; the publication, therefore, of a concise treatise on the “Russian Metallurgical Works, Iron, Copper, and Gold,” by one so well acquainted with the subject as Mr. HERBERT BARRY, is a matter for congratulation, since the Muscovite empire undoubtedly affords a large field for the profitable investment of capital in mining and metallurgical enterprise, and Mr. Barry's book appears to furnish precisely the kind of information which the capitalist should possess, and commencing with an account of the earliest exertions of any kind to continue the record to the present time, the industrial position of Russia, so far as regards its metallurgical works, is extremely low, yet the opinion that will be formed from reading Mr. Barry's book is that many of them, if they could be purchased at their present value, and developed with English capital and skill, would prove highly remunerative, but that their purchase at a



nominal price (unless the payment be entirely dependent upon profits to be realised, in which case somewhat larger liberality might be exercised) is absolutely essential to success. The quality of the ore seems to be excellent, and labour is cheap, but the works appear to be of excessive size, as a rule, considering the quantity of fuel at command. Mr. Barry is careful to explain the relative merits of the several districts and works, and to suggest means for bringing them into profitable working order. The work, which is published by Mr. Edinham Wilson, of the Royal Exchange, contains an abundance of valuable facts, and should be carefully studied by all who propose to embark in industrial enterprise in Russia. The book will be more fully noticed in a future issue.

## TRADE OF THE TYNE AND WEAR.

**JUNE 16.**—A most seasonable arrival of vessels in the North-Eastern ports during the last week has occasioned a fair amount of business in most branches of the coal, iron, and timber trades. There have been large deliveries of timber at Tyne Dock and other places for colliery and other purposes, and of esparto grass, for paper-making, while the exports of coal, iron, and machinery have been on a good scale, if not quite up to the very large quantities sent away weekly lately. The exports of coal during May show a large increase at all the leading North-Eastern ports, the total in May having been 561,890 tons, as compared with 438,953 tons in May, 1869. The quantity of coke sent away abroad was also considerably above the quantity sent in May last year. The quantity of coal and coke sent coastwise does not differ materially from the quantity sent in May, 1869.

**THE BACKWORTH STRIKE.**—A number of men arrived at this place from Wolverhampton on Wednesday week, having been engaged to fill up the places of those who had got work at other collieries in the district. About 100 arrived, mostly young men; and as is often the case when these migrations take place, they were, at least in the first instance, of a wrong sort of fellows, rather well received at Backworth, and no doubt many of them will learn to work this seams of coal, and settle here permanently. It is certainly very creditable to the old hands that they have shown no bad feeling, and it is not likely that any disturbances will take place on account of their introduction.

Another dispute, of a serious character, is now apprehended at Barradon Colliery. At these extensive works, where it will be recollected a most serious explosion occurred a few years ago, the men have given notice (the usual monthly notice) that they wish to have an advance of 2d. per ton. This notice was given on June 7, and it is feared at present that when this notice expires, on July 7, a strike may take place, but this may possibly be prevented. It is stated that the men at the Barradon Works, where a large number are employed, are earning large wages. This is, indeed, a fact which cannot be disputed; however, it appears that a section of the men have determined to attempt to get an advance.

On Monday last the annual picnic of the Northumberland miners was held on the seashore, near Blyth. An immense number of miners, their families, and friends, attended the gathering, not less than 15,000 persons being supposed to have been present. No less than twelve musical bands attended, and their gathering is not supposed to be arranged for the consideration of business matters, but more of the character of a social gathering, yet it is a custom for the leading members of the Miners' Union of this county on this occasion to address the older miners assembled on the state of affairs, and this meeting was remarkable for the number and character of the persons who delivered addresses. Mr. John Nixon, President of the Miners' Union, addressed the meeting. He stated that the balance-sheet showed an increase in the funds of the association over the previous year of 1237. 17s., the balance in favour of the association being in March, 1870, £5001., against £2641. in March, 1869. Besides the ordinary current expenditure during the year, there had been voted upwards of 800l. towards assisting other districts. Allusion was made by Mr. Nixon and others to the gambling which is carried on by some of the pitmen, and a hope was expressed that these remarks would lead to some reformation.

Mr. Burt made some remarks on the Mines Inspection Bill, which he considered, on the whole, to be worthy of their approbation. He, however, regretted that the Government had not pushed the Bill more during the present session, while he admitted that many important and urgent matters had engaged the attention of Parliament. He also alluded to the Backworth strike, and condemned in strong terms the conduct of the masters in ejecting the men from their houses there; and his remarks on this head are so illogical and absurd that nothing but prejudice can account for them, in our opinion. He, however, advocated arbitration as a mode of settling all disputes between masters and servants, and as this mode has been resorted to with success in the iron trade there is no reason why it should not succeed equally well in the coal trade. Mr. McDonald also addressed the meeting, and spoke of his efforts in promoting the Mines Regulation Bill, now before Parliament. He pointed out what he considered defects in the Bill, but expressed his opinion that it will pass during the present session; but, if not, they would get a better Bill next session. Amongst the defects of the Bill he said that the clause providing for the education of miners' children was omitted, and that the defective system of inspection which prevailed would not be remedied by the Bill.

## REPORT FROM SCOTLAND.

**JUNE 15.**—The market for Pig-Iron has been very active all the week, but has fluctuated considerably. On Friday quotations dropped to 59s. 9d. cash, then rallied to 60s. On Monday the opening was easier, and after 60s. had been paid there was a fall to 59s. 9d., and a rally to 60s. at the close, with heavy buying. Those outside the trade, who are buying up makers' stock of pigs, and sending them into store at the present rate of 1600 tons a day, mean something; and, although they deny all intentions of "rigging" the market, there are grave fears entertained here that if this game is persisted in the market will get "rigged," and serious losses will have to be borne by somebody. Yesterday, 60s. 6d. cash, and 60s. 9d. a month, were the ruling quotations, declining on late 'Change to 60s. cash, and 60s. 3d. a month. This morning the market was quiet, and 59s. 10d. cash was taken; afterwards 60s. cash, and 60s. 4 1/2d. was paid; closing, sellers, at these prices, buyers 1d. per ton less. Coltness, No. 1, 68s.; Gartsherrie, 67s. 6d.; Shotts and Langloan, 62s.; Eglington, 60s.; No. 1, g.m.b., 60s.; No. 3, 58s. 6d. Market sensitive and variable. The shipments of pig-iron from the Scotch ports for the week just ended amounted to 12,730 tons, against 11,890 tons in the corresponding week of last year, which makes the increase on the year to date amount to 24,620 tons. The increase in the imports from Middlesbrough for 1870 is close on 9500 tons, with contracts for heavier deliveries during the remaining months of the year.

**JUNE 16.**—To-day business in Pig-Iron was more animated, and a large quantity of "warrants" were paid for and removed from the market, which is, perhaps, as conclusive proof as we can have that a "rig" is impending. The price paid this forenoon was 60s. to 60s. 2d. cash, and 60s. 3d. to 60s. 6d. thirty days. In the afternoon business was done at 60s. 4d. prompt, 60s. 5d. ten days, and 60s. 7 1/2d. a month; closing, sellers, 60s. 5d. prompt, and 60s. 8d. a month; buyers a shade less.

Malleable Bars very firm, and buyers willing to pay any reasonable advance, but iron cannot be had. If the English makers show a disposition to draft off puddlers and millmen from their district, merchants here will immediately stop sending orders south, and will endeavour to get all their contracts postponed for a time.

Finished Iron maintains its price in this market, but ship-iron is less in demand, as shipbuilders have their contracts for the year negotiated, and it is too early yet to look for specifications for 1871 to any extent. The puddlers' strike continues with something like pertinacity, neither employers nor employed being disposed to bow to fate. This week notice has been given by the largest malleable firm in Scotland that if the puddlers do not return to work by the 25th inst. they will lock-up their works, both at Motherwell and here; and if this does not effect a settlement of the dispute other firms will follow their example, thus the entire trade in manufactured iron in Scotland will be brought to a stand. The districts are already suffering from the effects of the strike, partial though it is. What will be the privations and sufferings whole district will have to endure when every rolling-mill and puddling-furnace in Scotland is at rest? Orders are leaving this district every day for the South. A monster meeting of puddlers, headed by a brass band, was held on Wednesday, in the Temperance Hall, Coatbridge, when a procession took place. Of course, the object was to produce an impression favourable to their case, but beyond impressing themselves with its importance no other impression was made. Mr. Cain, one of the leaders from the North of England, having been called to the chair, addressed the men at considerable length. He urged them to endeavour by all means to get the masters to settle the dispute by arbitration. To achieve this end, he proposed that a deputation should visit the various masters, and obtain answers from each individually. If this failed, the men should seek employment elsewhere; and the North of England masters, he alleged, had employment for a considerable number of extra hands. Various other speakers addressed the meeting, urging the men to continue steadfast, and victory would be certain, but the tone of the meeting was commanding, and more conciliatory than those held previously. It is rumoured that Mr. Cain had an interview with the puddlers here-to-day, and that he recommended them to resume work forthwith, and he would endeavour to see the whole of the makers of malleable iron in this district, to urge upon them the expediency of submitting the matter in dispute to arbitration. We are not sure that the masters will agree to this, but this close contact may lead to an arrangement of the difficulty, as the majority of the men are heartily sick of the present state of matters, and perhaps the employers are feeling much the same.

The moulders of engine castings, being generally skilled workmen, have made a demand for an advance of 2s. per week on their wages; and, as the request is a combined one, some concession will require to be made to their trade, are also included in those making the demand; it is, therefore, very evident that labour seems disposed to vigorously assert its right to regulate and control the profits of capital, if by any means it can attain it.

Shipping Coals maintain their demand, but prices are very elastic. The shipments show an aggregate of 37,715 tons for the week just

closed, against 22,885 tons in the corresponding week of last year. Best house coal seems to have no outlet beyond local demand, and prices are maintained, because the dribbles could make no impression on the market either way. A brisk demand would bring down prices to effect a satisfactory business to any appreciable extent. The colliers employed at Ironmasters' pits have very generally received an advance of 6d. per day, which places them on a level with those working to the sale coalmasters.

The small estate of Gockstone, near Paisley, which contains fire-clay and other minerals, has been purchased by Mr. John Young, of Fulwood, for the sum of 4390l.

Shipbuilders are all very busy, and we notice the launch of a handsome-yet-fitted steam yacht for the Earl of Wilton, of 450 tons, old measurement. The annual meeting of Young's Paraffin Light and Mineral Oil Company (Limited) was held on Wednesday, at the company's offices here, when a report by the directors, with the balance-sheets for the year ending April 30, was submitted. A profit of 85,316l. 14s. had been realised, from which there fell to be deducted several sums, for interest and depreciation on the works and pits, leaving for division a net sum of 47,112l. A dividend was declared at the rate of 10 per cent. per annum, and 2500l. was placed to the credit of the fire-insurance fund, leaving a balance of 7477l. 17s. 3d. to be carried forward.

## REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

**JUNE 16.**—The Iron Trade is rather quieter in South Staffordshire just now. The orders on hand are not of large amount, and as the end of the quarter approaches there is usually a slight disposition to hold back, so that there is a little less activity. If, however, the withholding of specifications is in any degree prompted by a hope of lower prices it is likely to be disappointed. Pig-iron is rising. The Barrow hematite producers are asking 4l., or an advance of 2s. 6d. per ton, and as the price of foreign pigs determine the rate in the district it is not unlikely that Staffordshire pigs will be stiffer. Best all mine hot-blast are now at 3l. 15s. to 3l. 17s. 6d., and 4l. is asked in some cases. With pig-iron at such prices finished iron cannot be produced at lower rates, and should the present hot weather last the make will be reduced. Looking at the demand for rails, and the probability of more being wanted, it seems reasonable to hope for better prices next quarter. A new furnace has just been blown in at Tipton Green, and another now in course of erection at Dudley Port will soon be ready for work.

When the dreadful accident occurred at Talke, in North Staffordshire, the committee formed to provide for the relief of dependent survivors were, very properly, not satisfied with merely providing for the case, but desired to establish a fund for the purpose of forming the nucleus of a permanent fund to which miners should be invited to contribute, and thus entitle themselves and those dependent on them to certain specific benefits in case of death. In a letter to the *Staffordshire Advertiser* of Saturday, the excr. Sir Lovelace Slater, rector of Stoke-upon-Trent, who has taken a great interest in the question, writes to explain the position of the matter. It appears that with 1500l. handed over by the Mansion House Committee 3000l. was available for the proposed benefit society. Rules have been carefully prepared, and after consulting Mr. Nelson, of Great James's-street, Bedford-row, London, the committee are able with full confidence to offer that for a payment of 2d. weekly a married man, in case of his death by accident in or about coal and ironstone mines, can secure for his widow as a week for the first five years, and 2s. for the second five years, and for each child under age 2s. a week, while in case of his own disablement through accident he will receive 6s. a week for the first five years, or for such portion of five years as the disablement lasts, and if the disablement should continue longer than 3s. a week for such further time as he is unable to follow his employment. Sir Lovelace acknowledges that the miners do not show any great desire to avail themselves of the benefits thus offered to them, but some progress is being made, and he adds:—"One thing is certain, I think. When the public are made aware that a weekly contribution of 2d. such provision as I have named can be made by the well-paid colliers and ironstone workers of this district for themselves, their wives, and children they will hesitate before they contribute for their relief on the occurrence of great accidents as they have done hitherto." It is a matter of regret that at present the miners in South Staffordshire are making very little progress towards raising the 5000l. which will entitle them to a similar disposal of that part of the balance of the Hartley Fund which was assigned to the district.

A curious case came before the County Court Judge at Wolverhampton, on Tuesday. The *Birmingham Post* thus states the case:—"Messrs. Jones and Jenson, of Wolverhampton, are contractors with the corporation of that town for the construction of certain sewage works. In the course of their excavations the other day they came upon some sand, and, as their contract provides that all earth not needed to fill up the trenches shall 'be carted away and disposed of by the contractors with all convenient speed,' they lost no time in selling the sand to a private customer. Now, though the land on which this discovery was made had been legitimately acquired by the corporation, the purchase did not include 'mines and minerals,' the property of which remained vested in the original owner—Mr. Lovelace Slater. The latter accordingly laid claim to the sand as a mineral, and called upon the purchaser to pay its value to him, and not to the contractors, of whom he had obtained it. On behalf of the contractors, it was urged that the sand was not a mineral in the sense in which such deposits are distinguished from the land in which they occur, and that they were obliged by their specification to remove and dispose of it, or they would have been subject to a fine for stopping the work. It was further pointed out that, according to trade usage, the stinker employed to open a pit-shaft was entitled to everything he excavated, and the only difference between his work and that of the sewage contractors was that the former cut perpendicularly and the latter horizontally. The Judge decided for the contractors, observing that if the owner of the freehold had any claim it was against the corporation who took the land, and not the contractor. [Some remarks on this subject will be found in a Leader Article of this day's Journal.]

The Dudley Correspondent of the *Wolverhampton Chronicle* writes:—

We are now far advanced in the quarter, and are thus fully expected more activity, but what improvement has taken place is far from being general. Prices for second-class productions are somewhat higher, but are even now far from being remunerative. First-class houses rigidly adhere to the list prices, but the orders received are of a comparatively meagre character, and as a consequence, the proprietors have some difficulty in keeping their works in regular operation. Any person who will take the trouble to reconnoitre the district will find that there is anything but the general briskness which some would have us believe exists in the trade. The demand for pig-iron keeps very good. All mine, hot-blast, is realising from 3l. 15s. to 3l. 17s. 6d. per ton; cold-blast, 4l. 10s., and in some places 4l. 12s. 6d. per ton. There is but little, however, of the latter sort made in South Staffordshire. Grey iron and white iron, of the latter sort ordinary makers are stiffening in prices, and are likely to do so, as the Scotch pigs are sufficiently high to prevent anything like competition with this district, which tends to confirm the idea that the producers of pig-iron in these localities will be enabled to command higher rates—a desideratum devoutly to be wished, for their scale of profits for many years past has been anything but satisfactory. The weekly produce of pigs in South Staffordshire and East Worcestershire is about 14,200 tons. This is not sufficient for the requirements of the district, especially when we take into account what is necessary for the various foundries, as well as the whole of the mills and forges now in operation. Little has been done in the collieries during the week. The pits, however, are now at work again, and as the output is rather large the demand will soon be supplied. There is a growing enquiry for gubbin and white ironstone. The price of the former is 13s., and of the latter 12s. 6d. per ton of 2240 lbs. When sold at long weight it is proportionately higher, according to the weight or number of pounds to the ton, as may be agreed upon by the purchaser, but there are some who decline to sell any other weight than the Imperial standard.

The SOUTH STAFFORDSHIRE AND EAST WORCESTERSHIRE INSTITUTE OF MINING ENGINEERS have arranged to start upon their Belgian excursion on Saturday morning (June 18). The party will visit Antwerp, Brussels, Mons, Charleroi, Namur, and Liège, devoting nearly three days to the examination of the coal field, the distance across which is about 100 miles. There are 157 seams of coal, varying from 10 in. to 3 ft. in thickness, and it is said there are 120 workable seams in the Belgian coal field. The celebrated Coal shaft, at Viviers Réunis, near Gilley, is 1137 yards deep. The excursionists will return to London on Wednesday, June 29.

## SOUTH MIDLAND INSTITUTE OF MINING, CIVIL, AND MECHANICAL ENGINEERS.

The annual meeting of this Institute was held on Monday, at the School of Art, Wolverhampton—Mr. HENRY BECKETT (Chairman) presiding. Amongst the members present were Mr. J. P. Baker (Her Majesty's Inspector of Mines for the district), Mr. E. Jones (mining engineer of the Lilleshall Company), Mr. James Cope (hon. sec.), T. Rose, S. Bowkley, W. Blakemore, J. Randall (Ironbridge), D. W. Lees, John Foster, A. Bowkley, H. F. Griffiths, W. Smith, J. W. Baker, C. Greene, J. Bromley, W. Parton, T. Hawkins, T. Price, J. Williams, B. Guy, and others.

On the motion of Mr. BAKER, seconded by the SECRETARY, the following gentlemen were elected members:—Messrs. James Slater, solicitor, Darlaston; G. B. Thorncroft, Tettenhall Wood; R. S. Walker, Preston; Reuben Turner, Wolverhampton; Edwd. Phillips, Deepfield; Joseph John, and Edwd. Hawkins, Wryley; Thomas Fellows, Moxley; Thomas Millington, Wednesbury; Thomas Southan, Donnington; and Edward Shenton, Bilbrook. This election, the President remarked, would make the members a total of 123.

The PRESIDENT read the following communication which he had received from Mr. F. W. Gerhard, with whom he had had many interviews, and respecting whom the Secretary had received highly satisfactory letters:—

"Sir,—I have briefly enumerated the nature of the experiments with which I have been engaged for some years past—in the metallurgy of iron.—A mode of desulphurising coke and desulphurising iron ore for the purpose of making

pig-iron from the materials produced in this country equal in purity to Swedish pig-iron.—2. A more perfect system of combustion, whereby a saving of fuel in the production of iron of from 10 to 50 per cent. is economised.—3. A simple and inexpensive mode of converting pig-iron into wrought or malleable iron without the aid of puddling, the expense of which will not exceed 2s. per ton.—4. A smokeless furnace, the consumption of slack, which can be adapted to puddling or other purposes.—F. W. GERHARD."

Mr. Gerhard, the President explained, was unable to utilise his invention himself, and he (the President) thought it well to bring the subject before that meeting, in order that the members or their friends might have an opportunity of putting themselves into communication with the inventor, for the subjects spoken of were of great national importance. The meeting adopted a minute of the last council meeting, which, owing to the rates requiring considerable revision, suggested the re-election of the officers of the past year, excepting only the President, from whom there was a notice on the paper calling the meeting, to the effect that he should nominate the Government Inspector of Mines as President in his stead.—The meeting adopted the minutes; and then Mr. BAKER proposed that Mr. Beckett should be desired to honour the Institute by continuing its President.—Mr. E. JONES seconded the selection of Mr. Beckett.

Mr. S. BOWKLEY seconded Mr. Baker that, with Mr. Beckett's notice on the paper, the proposition had placed the meeting in somewhat of a dilemma. It was in every respect desirable, as Mr. Beckett had felt, that the Government Inspector of the district should be at the head of the Institute. The services which the representative of Government could render them in that capacity were very great; and he hoped that Mr. Baker would concede to Mr. Beckett's wish, and take the head of the society. They were all immensely indebted to Mr. Beckett for the assistance and the counsel, and the professional knowledge with which he had advanced the interests of the Institute, which they all well knew were dear to that gentleman. Of this there could not be a more striking proof than that furnished by the motion which contemplated the election of Mr. Baker to the post which had in every way been conspicuously graced by himself.

Mr. BAKER said he did not wish to embarrass the Institute; and, yielding to what was understood to be the best course to pursue, withdrew the proposition he had made. Mr. Beckett then thanked Mr. Baker for thus making their course easy, and moved the resolution of which he had given notice.—It was seconded by Mr. BOWKLEY, and adopted amidst applause.—Mr. BAKER, in responding, promised the customary inaugural address at the next meeting.

The Council were then desired to revise the rules, and report to a special general meeting to be called for the purpose. Mr. BECKETT then made known that he and the hon. sec. had inspected Baggaridge Wood in connection with future explorations for coal, and Mr. F. Smith, Earl Dudley's agent, had promised to see him upon the subject. He then stated that he had received a boulder of slate that had been found in the clay at Blakenall. The discovery demonstrated an exceptional state of things for South Staffordshire, and he and the hon. sec. had gone to the site. They found it to be a cutting in connection with the sewerage operations of the borough. The works were evidently being carried through the fault which had been marked down as likely to exist thereabouts. The discovery was alike important and interesting. It defined the position of the fault, and formed a caution-belt in respect of new sinkings.

Mr. BAKER announced that he had seen Mr. Stokes, of Sareston. That gentleman thought that if he gave the Institute the sections of the sinkings that he had made there he ought to be compensated. Mr. Stokes had no objection to see a deputation from the Institute. Mr. Stokes had gone down 60 yards. He had got through the red ground, and stated that the last 20 yards were characterised by most favourable evidences. Mr. Stokes fully believed that coal would be found at Sareston.—The hon. sec. notified that he would have a committee that they would find the coal, but at 700 yards probably.—The GOVERNMENT INSPECTOR: Why, not at 1000 yards? If they have increased the depth from over 300 to 500, and you say it will not be found under 700 yards, to advance to 1000 yards would be only a step.

On the motion of Mr. BOWKLEY, seconded by the GOVERNMENT INSPECTOR, and amidst the applause of the meeting, Mr. Beckett was thanked for his many and great services as President.—In responding, Mr. BECKETT congratulated the Institute upon having a man of Mr. Baker's eminence at its head, and expressed a hope that he would fill the post for many years; and said he trusted that their Dudley friends would soon join them. The South Midland Institute was increasing its members rapidly, and they were located over very wide districts—indeed, extended even to America. He could not see why the present 123 should not enlarge to 1000. (Applause.)

The Institute then adjourned to the annual dinner, which took place at the Star and Garter Hotel. The President elect was in the chair, and several excellent speeches were made.

Mr. JONES, of the Lilleshall Company, as Vice-Chairman, after some general remarks, referred to the interesting topic of the South Staffordshire and Shropshire coal field, and the probabilities of further resources still to be found than those which are already known to exist. He said there was no doubt that the two counties had been operated upon for a very long period of years. His own county, for upwards of a century, and this county for certainly a not less period, and yet up to the eleventh hour—notwithstanding fears expressed by some to the contrary—we had managed to hold our own, and were doing even more now in certain tracts than at any previous date. He knew, for instance, of places that were at one time thought to be thoroughly exhausted and worked out, which had recently been tried again, and at the present moment were yielding more for the community at large, and for the benefit of their owners, than they did a century ago. On the other hand, new seams were being developed from day to day, and from year to year. It was true the development of them was more costly; still, with modern science and modern skill, it was astonishing how far we could go for a little more money. It was surprising how far a little money had gone in his own particular district. It was astonishing how far he had gone, and to depths as great as in some of the North of England places, but at much less cost. Take, for instance, the Monkwearmouth Colliery. There at first the original promoters spent no less a sum than 250,000l., and afterwards 150,000l. was expended by the succeeding proprietors, who took up the work, and now he knew, from his own experience, they had got down to some of the best coal in the country—in fact, at the present time the Monkwearmouth Colliery was one of the most profitable commercial speculations going. In his own district, however, they had produced as good results with much less money. Take, as an instance, the Granville "winings." There they sank on and on, and when they were within even a few feet of the mineral they were searching for, cold water was thrown upon the scheme by people in the immediate neighbourhood, and yet within six weeks of that time they came upon the richest seam of coal the country ever produced. They went on sinking for five years without a single accident, and yet he did not think the entire cost of that and the subsequent sinkings they had carried out had exceeded 60,000l. Notwithstanding that up to the last they had very little to encourage them, yet they felt themselves in duty bound to go on, and he was happy to tell them that those sinkings had been even more successful than was at first anticipated. Then, as to the question of extension, a question that had often been discussed, and was just now exciting a great deal of interest. He might tell them that the coal field north-east of the Shropshire district lies perfectly horizontal, and they were now going to extend out easterly, hoping to find a continuation of coal over a far larger tract of the Cheshire country. He had heard of a fault being met with, but he believed it was only an "outthrow," probably of about 100 yards, and the chances were that the lower series might come across that field, opening up to the upper series, and then drawing a line nearer the east of the field towards Cannock Chase. Then they came next to the Stafford pits, where, as they knew, the old geologists told them there was no coal to the east of that particular point. He must say they had their misgivings. His managing partner was rather sceptical on the point, but they were rapidly working out the coal in the direction, for they had the whole line in the direction of Madeley. There they came to a denudation east of the present sinkings, and he was sorry to hear that they had come to a downthrow east of this locality, but he hoped that a lower series of coal would be found. How far, however, the denudation might be found in the direction of Shutt End, and the north-east part of the coal field, remained to be seen. It was only a question of time, as the present extensions went on week by week, and year by year, to prove whether the theories that had been expressed as to further developments were correct, and he trusted the Council, that trusted, guided by the best modern views of the best modern men, would use their utmost exertions to thoroughly prove the district around them. If, as was surmised by some, that the coal field in Shropshire was found to extend pretty much in the solid from that district to Cannock Chase, it would then give them as much mineral as would supply the wants not only of this generation, but of generations to come. He was pretty sanguine in his own mind that the search for more minerals would be more likely to be attended with success in the direction and district to which he had alluded than in this. He did not think the Permians would be found very thickly. Time would prove it, and money would prove it, and he hoped that some of them might live to see the operations carried out that would fully test the correctness of the opinions expressed. (Hear, hear, and applause.)

The opinion was almost universally expressed that the Institute would work great benefit to the staple industries of the district, at the same time that it advanced the science of mining, civil, and mechanical engineering over an extended area.

**DUDLEY AND MIDLAND GEOLOGICAL AND SCIENTIFIC SOCIETY.**—Mr. Frederick Smith, M.A., presided at the annual meeting of this society, held in Dudley, on Tuesday, and among those present were—Prof. Beckett, Messrs. E. B. Marten, H. Burton, W. Spruce, J. Cole, S. Bowkley, E. Hollier, W. Masefield, J. Renaud, Jun., J. Williams, C. Ketley, S. Griffiths, and many other gentlemen. The report of the committee showed that there were 24 members on the books, and that the whole of the Transactions of the society would soon be ready. In conclusion, the report regretted the sudden decease of Prof. Jukes, and expressed an opinion that geological science had sustained a great loss by his death, which was to be deplored the more on account of the deceased gentleman's kindness and thorough knowledge of that district. The report was adopted. The Earl of Dudley was re-elected President; and the following gentlemen Vice-Presidents:—Mr. J. P. Baker, Her Majesty's Inspector of Mines, Mr. Beckett, Major Fletcher, Mr. B. Gibbons, Mr. Kettle, Mr. W. Matthews, Mr. F. Smith, Mr. E. F. Smith, Mr. G. Taylor, and Mr. C. Gwynne. The committee then re-elected the members of the names of the Rev. H. W. Crosskey (Birmingham), and Mr. Terry, Jan. Mr. E. Grainger was re-elected treasurer, and Mr. W. Madeley secretary. It was determined that the



South Staffordshire and East Worcestershire Institute of Mining Engineers should be allowed to meet in the Museum at a rental of 10l. per annum, one-half to go to the Mechanics' Institute. Mr. Marten exhibited and explained a model of the South Staffordshire coal field. This was of wood, with the surface so cut as to show the undulations of the country and the natural drainage. It was divided into sections, which had on the sides illustrations of the mines beneath the surface. Mr. Marten explained for his model great teaching power, and believed that if a large one was made the natural valley drainage might be so clearly seen that pumping might be considerably reduced. The meeting praised the model, and determined to purchase a large one for the use of the members. A vote of thanks to the Chairman brought this part of the business to a close. The party then visited the Chairman's seat, the Priory, and inspected the ruins, after which the Wren's Nest Hill was explored. The geologists in the party searched it thoroughly; after which Mr. Madeley read a paper describing the hill and its relative position, arguing that the limestone being in an almost vertical position was due to the fact that a mighty stream of lava had heaved the rocks up, and then escaped on the south side, forming Rowley Hills. A vote of thanks was given to Mr. Madeley, and the party proceeded to the Dudley Arms Hotel. Mr. Spence, of Pensnett, exhibited some fine fossils.

#### REPORT FROM DERBYSHIRE AND YORKSHIRE.

June 16.—There is no alteration whatever to be noticed with regard to the business doing at the iron works in Derbyshire. The trade generally may be said to be moderately good, whilst the output of Pig-Iron is still very large. The tonnage of coal going from the district to London and the South is of full average proportions for the season. To the West of England the Midland Railway by opening a depot at Bath has afforded the coalowners an opportunity of sending into that locality, although there are a few pits in the immediate neighbourhood of the fashionable city. In Steam Coal there is now rather more doing, not only by railway but also to some of the Yorkshire ports, for exportation to the Continent. The great interest taken by the Staveley Company in all that relates to the welfare of their workpeople has just been manifested in an act of unostentatious generosity, which cannot but be warmly appreciated by the parties interested. It having been made known to Mr. Chas. Markham, the managing director—to whom the workmen are under so many obligations for the solicitude he had always shown in the promotion of all objects calculated to benefit them and their families—that the place where the services of the Primitive Methodist body were conducted was inadequate for the purpose, the directors, through him, not only granted a site for a chapel, but also gave 400l. towards the erection of the building.

Several of the heavy branches of the Sheffield Trades are now very active. Armour and ship-plates, locomotive machinery, rails, tyres, axles, wheels, &c., are in brisk demand. Makers of Bessemer steel were never busier, and orders are now in advance of the means of supply. In rails in particular there is a very extensive trade being done, and it is said that makers are now completing an order to the extent of 12,000 tons for Russia. The iron works in the neighbourhood of Rotherham are kept well going, and the men are fully employed, and the same may be said with regard to Elsecar, where work, as a rule, has been more regular for some years past than at almost any other place in the county, the Messrs. Daves enjoying a high reputation for rails, as well as for other qualities of manufactured iron, at the same time being amongst the largest private firms of producers of pig-iron in the kingdom. The Coal Trade is still quiet, so far as regards household qualities, most of the collieries doing little more than three days a week, whilst a good deal of the "softs" has to be turned on to the pits. In steam coal, however, business is tolerably active, a considerable tonnage being forwarded to Hull and Grimsby. The South Yorkshire Steam Coalowners' Association have commenced operations at Hull, having taken office and appointed as agent a gentleman recently connected with the firm of M. J. Jose. Already it has been the means of keeping the steam coal from being reduced some 6d. or 9d. per ton, at the same time letting the foreign purchaser have it at as low a price as hitherto. The merchants or purchasers from colliery owners for re-sale are now likely to be affected by the operations of the association, which holds out advantages to direct dealers which they have not before enjoyed. In engine fuel a very fair business is being done with Lancashire, and a good deal of hard coal and coke is being sent into Lincolnshire for the use of the furnaces there.

Lady Geraldine Clifton (widow of Sir R. J. Clifton, formerly M.P. for Nottingham) opened the extensive and valuable colliery on the Wilford estate, near Nottingham, on Thursday. A procession, consisting of the Mayor, magistrates, and corporation of the town, accompanied by Odd Fellows, Royal Foresters, &c., received Lady Clifton at the south side of the new bridge, and her ladyship drove over to the north side of the bridge and declared it to be open. The procession being re-formed, followed the carriage of Lady Clifton to the new colliery (about 200 yards distant), and opened it. The valuable seams of coal are to be worked by Mr. Saul Isaac, the Lord of the Manor (Mr. H. R. Clifton) to receive a royalty. The new bridge, which takes the place of a ferry boat, used for the conveyance of passengers across the Trent, will be a great boon to the public, and the successful working of the colliery will be of immense advantage to Nottingham, the colliery being only a mile distant from the town.

An accident occurred on Wednesday at the Linnyslaw coal pit, Higher Worsley, belonging to the Bridgewater Trustees. Matthew Morris, of Walsden, and John Martin-croft, of Sinton, were driving a level. They had drilled a hole to the depth of about 12 inches, and filled it with broken lime and water; and they were about to "stem" it in when the lime exploded, and both men were badly burnt about the face. It is feared that they will lose their sight.

THE AMALGAMATED ASSOCIATION OF MINERS.—On Tuesday and Wednesday the executive committee of the Amalgamated Association of Miners held a Conference in Bolton to consider various questions. Mr. Thomas Halliday, President of the Association, was in the chair. The principal subject discussed was the Mines Regulation Bill, and the Executive expressed their regret that the Bill is in such a state of uncertainty, and deputed the President to wait upon the Home Secretary and to ascertain from him whether it is his intention to proceed with the Bill this year, and if so to request him to proceed with it as early a date as possible. The Executive also decided to keep up the agitation in favour of amending the Bill, so as to meet the requirements of the miners more fully.

#### REPORT FROM MONMOUTH AND SOUTH WALES.

June 16.—Although no special feature of interest has arisen in connection with the Iron Trade since last report, still it is pleasing to be able to record a continued healthy state of things. This week the usual activity is again evinced in all the principal works. As previously stated, there are plenty of orders on hand, and the establishments require to be fully and busily employed, both now and for some weeks hence. It will, therefore, be useless to look for the transaction of much fresh business just now, as instances are not wanting to show the disinclination on the part of the manufacturers to accept new contracts, and buyers complain of the difficulty they encounter in endeavouring to place a few more orders for summer delivery. Probably such will be the case for the next month or two, and in the meantime makers will prepare themselves for the accession of business which is likely to follow, by clearing off their hands, if not all, the most urgent of the spring engagements. They will then, there is little doubt, enter upon a still more profitable trade in the manufacture of railway materials. It is pretty certain that heavy orders are forthcoming, and with the fact that quotations have at present a very strong tendency upwards, there is no doubt but an appreciative higher list of prices will shortly be established. The difference between the rates now ruling and those obtained in the early part of the spring, showing something like 10s. and 15s. per ton in favour of makers, augurs well for the future. The prospects in regard to the rail trade are, therefore, decidedly encouraging. The demand from the Muscovite empire, the United States markets, together with a number of continental houses, is actively sustained, extensive clearances being each week effected to those parts, and among the last-named purchasers Germany may be instanced as one of the principal, large quantities of railway iron having been enquired for lately. In reference to the home trade, there is hardly anything fresh to be noticed. With the progress, however, which is made in foreign transactions, this branch of the trade is gradually influenced and improved, and eventually, no doubt, a greater degree of activity will be shown in all its departments. For pig-iron and bars an improved demand is reported, and prices continue to stiffen, more especially for pigs. In the Tin-Plate Trade business is a little more active, and makers are endeavouring all they can to establish higher prices for plates, as it is clear that until they are able to do so they cannot derive much benefit from their productions, owing to the very high price of tin.

In the Steam Coal Trade business shows a little more regularity than was the case last week, although there are still many complaints of the detention of wagons at the ports owing to the scarcity of ships. In the demand there is scarcely any change to notice, the enquiry being, upon the whole, equal to the average. The belief is now general that it would have been better on all sides if the advance in wages which was lately granted to the men had been delayed for a short time; but as it is now too late to discuss the question, colliery proprietors show a determination to uphold prices as far as possible, which is the next best thing in their power. In the House Coal Trade the same quiet state of things as was last reported continues to exist.

The Ebbw Vale Steel, Iron, and Coal Company (Limited) have determined on recommending the payment of a dividend of 2s. per share, which will make, with the interim dividend paid in December last, 30s. for the year, being equal to a little more than 5 per cent. per annum.

Concurrent with the establishment of a new company at Blaenavon, another new furnace has just been blown in at the works, which will make the ninth in blast. Five of the furnaces are producing cold-blast iron, and four hot-blast. The foundation of a tenth is being laid, and when this is constructed these works will be rendered one of the most extensive in the district.

A work which will conduce considerably to the benefit of the colliery proprietors of the Rhondda Valley is being proceeded with by the Taff Vale Railway Company. A double line of rails is being laid along the route from Ystrad to Treherbert, under the superintendence of Mr. G. Fisher and Mr. Billups, the contractors. When the double line is completed the traffic will be greatly facilitated, as hitherto, with the single line, the frequent detention of mineral trains to allow the passenger trains to proceed has caused much inconvenience and irregularity in the conveyance of coals from the pits to the port. The present dry season is wisely taken advantage of in the widening of the bridges across the stream.

The trustees of the Swansea Harbour seem to be pretty sanguine in regard to the trade of that district. At their monthly meeting, held a few days ago, the Chairman, in moving the adoption of the minutes of the finance committee meeting, observed that, although trade had been very much depressed, there had been an increase in the revenue of the harbour compared with the corresponding period of last year. For the past eleven months there had been an increase of 559l. 6s. 10d. on general harbour estate, and the loss on the South Docks estate was 582l. 14s. 6d. less, thus placing them in a better position, to the extent of 941l., than they were for the corresponding eleven months of last year. This certainly shows an improved state of things.

On the whole, the trade of the South Wales ports during the month of May last will be a favourable comparison with that of the corresponding month in the preceding year. The exports of coal for the month were as follows:—Cardiff, 180,613 tons, as against 181,931 tons in May, 1869; Newport, 31,384 tons, against 22,181 tons; Swansea, 39,729 tons, against 50,156 tons; and Llanelly, 12,423 tons, against 16,782 tons. The shipments coastwise for the same period were—Cardiff, 75,147 tons, as compared with 93,179 tons in the corresponding month of last year; Newport, 71,213 tons, compared with 61,731 tons; Swansea, 17,855 tons, compared with 21,427 tons; and Llanelly, 13,345 tons, compared with 18,222 tons. Cardiff also exported 22,026 tons of iron; and 4505 tons patent fuel; Newport, 23,294 tons of iron, and Swansea 10,683 tons patent fuel.

The arrivals at Swansea include—the Dart, from Antwerp, with 130 tons of fire-clay, for Richardson and Walters; the Lizzie, from Bilbao, with 430 tons of iron ore, for James Strick; the Kilvey, from Bilbao, with 438 tons of iron ore, for H. Bath and Son; the Orvadoc, from Bilbao, with 200 tons of iron ore, for James Strick; the Adelphi, from Carlaforte, with 440 tons of zinc ore, for H. Bath and Son; the Hannah, from Bilbao, with 275 tons of iron ore, for Cory Bros.; the Hydrantha, from Carlaforte, with 250 tons of zinc ore, to order; the Titania, from Huvela, with 380 tons of pyrites, to order; the Zolna, from Carrizal, with 545 tons of copper regulus, for H. Bath and Son; the Antonio Vincent, from Hondelup, with 675 tons of copper ore, for Richardson and Co.; the Alerte, from Bilbao, with 80 tons of mineral ore, for H. Bath and Son; the Sampson, from Lisbon, with 188 tons of phosphate of lime, for Vivian and Sons; the Menemore, from Requijada, with 172 tons of zinc ore, to order; the Norma, from Bilbao, with 150 tons of iron ore, for T. Wood and Co.

#### REPORT FROM THE NORTH OF ENGLAND.

Middlesborough, June 16.—The Pig-Iron Trade continues to improve from week to week. Demand remains strong, and consequently, prices stiffen. The attendance on Middlesborough 'Change on Tuesday was large, but we are not aware that much business was transacted. Recent quotations for pigs were firmly adhered to, and there is every probability that the present rates will, before many weeks are past, be increased. No. 1 is 56s.; No. 3, 53s. cash, f.o.b. at makers' works. For immediate delivery pig-iron is difficult to be had, but during the last three or four weeks some large sales are reported for next year's delivery. As we showed in our last report, the district stocks are very low, and complaint is heard from various quarters of the delay in loading vessels, and also in inland deliveries. Messrs. B. Samuelson and Co., Newport, started their two new furnaces a few days ago. These two are in addition to the five they already had blowing, and the make of the Cleveland district will be still further increased by Messrs. Lloyd and Co., who intend putting their new furnaces in blast in the course of a few days. The number of furnaces now in full blast in Cleveland is 106. The stock in the Middlesborough warrant store continues to reduce, the total contents now being 17,259 tons. Quotations for mixed numbers, 53s. 6d. to 54s.

Enquiry for rails is still animated, and some heavy contracts for next year's delivery have lately been made. From American and Russian buyers there is still brisk demand, as well also from Hungary. The rail-mills are all in full work, and there is no doubt but that the mills will have plenty of work for many months to come. For plates there is a steady demand. Shipbuilding is unabated. The yards throughout the North appear to have sufficient orders to keep them fully occupied. Yesterday the Swifts, an armour-clad war frigate, built by the Palmer Shipbuilding and Iron Company (Limited) for the Government, was launched. She is a magnificent vessel, and fitted out with all the latest improvements. The builders were complimented by the Admiralty Inspector, Mr. Luke, as having done what he had not known to be done during his 16 years' inspectorship—they had launched the Swifts three months before the time specified in the contract. Engineering establishments are well off, generally speaking, for orders. Messrs. Head, Wrightson, and Co., of Stockton, have lately received instructions to build a large bridge for a foreign railway, and other important orders in this line of business have within a short time past been received by Northern houses.

The Coal and Coke Trades are brisk, particularly the latter. The consumption of coke is now very great, and continues to increase. The new furnaces that are being blown in in the Cleveland district all extend the consumption, and makers of first-class coals are much pressed for deliveries. For coal—steam and also household—there is active enquiry, and prices may be said to be improving.

Despite the threats and efforts of Russia and the United States to reduce their consumption of English iron, the Cleveland district is still enjoying a large amount of prosperity. Cleveland has now 111 blast-furnaces, and at the close of May the unprecedented proportion of 104 were in blast. Since the commencement of the current month the number of furnaces has been further increased to 113, and the total number of those in blast to 106, Messrs. B. Samuelson and Co., of Middlesborough, having blown in two new furnaces. Several additional furnaces are also being built; thus Bolekow, Vaughan, and Co. (Limited), Messrs. Cochrane and Co., Messrs. Gilkes, Wilson, Pease, and Co., Messrs. Lloyd and Co., the Consols Iron Company (Limited), and the Warrdale Iron and Coal Company are erecting two furnaces each, or twelve in all; Messrs. Swan, Coats, and Co., and the Norton Iron Company (Limited), are building one new furnace each; it should also have been noted that Bolekow, Vaughan, and Co. (Limited) are building a new furnace at Whitton Park. It would seem, then, that before many months have elapsed Cleveland will have no fewer than 128 furnaces—a total which will show an amazing progress upon the corresponding figures to be found in the earlier annals of the group. There is not cause, however, for a rash judgment as to the progress of the details we have summarised, indicating what we reflect that in May the makers of Middlesborough warrant stores experienced a further decrease of 5303 tons, although the production of pig effected in the district in May was computed at 141,829 tons, as compared with 122,704 tons in May, 1869. Time was when it was thought that Cleveland had achieved a great feat when it had attained a production of 1,000,000 tons per annum; but the production of Cleveland pig this year promises to range between 1,600,000 and 1,700,000 tons, and yet the supply cannot keep pace with the present demand.

CLEVELAND PIG-IRON TRADE.—Mr. C. E. Muller (Middlesborough) writes—During the month we have had a very animated market for Cleveland pig-iron. For immediate delivery very little iron could be bought at all, but for delivery over next year a most extensive business has transpired, at gradually advanced prices, till at the market on Tuesday last sellers held for No. 1, 56s. 6d.; No. 3, 53s.; No. 4, 52s.; other qualities in proportion. The buying for next year has been chiefly for consumption in this district, partly, no doubt, to cover large contracts for rails. I estimate the quantity of pigs as sold at little short of 200,000 tons. There are now 106 furnaces in blast, against 102 reported at this time last month. Increase accounted for as follows:—Norton Iron Company, 1; Norwegian Titanic Iron Company, 1; B. Samuelson and Co., 2 new furnaces. The following are the usual official figures for last month, compared with corresponding months last year:—

	Production.	Ship. coastwise.	Ship. foreign.	War. stores.
May 21, 1870.	141,829	21,223	29,662	18,534
" 1869.	122,704	12,592	15,491	56,702

Increase 19,125 .. Increase 8,631 .. Increase 14,171 .. Decrease 38,168  
Makers' stock now stand at 68,914 tons, being 3253 tons decrease during May. Store 18,534 tons, being 2950 tons decrease during May. Total reduction for the month 5303 tons. Total stocks on May 31, 86,548 tons—barely equal to three weeks' supply at present rate of demand. This is a most insufficient working stock, and shippers are grievously inconvenienced through delay in loading vessels. It should be borne in mind also that 20 per cent. of the above stock is held at works situated inland, and therefore, not available for shipping purposes. The foreign shipments are again remarkably heavy—nearly double those of last year. Holland and Belgium head the list with 10,550 tons; France, 9407; and Germany, 6621 tons. [Note.—Under the item of "foreign shipments," my figures differ widely from those of the Ironmaster's Association, being 29,462 tons, while they give only 17,893 tons. My returns are made up from the very best authority, and in further detail are as follows:—From Middlesborough, 26,556 tons; Newcastle, 2725 tons; North Shields, 10 tons; Sunderland, 100 tons; and East and West Hartlepool, 733 tons—29,662 tons.] The manufactured iron trade is decidedly improved, and better prices obtainable. Common bars, 7l. to 7l. 5s.; refined, 7l. 10s. to 8l.; ship plates, 3l.; angle iron, 7l. 10s. to 7l. 12s. 6d. per ton; in Staffordshire, Cumberland, and Wales there is likewise an improved demand for all classes of finished iron.

The following are some particulars respecting the recent visit of

the Cleveland Iron Trade Formen's Association to Messrs. Bolekow, Vaughan, and Co.'s iron mill at Eston, reference to which was made in last week's Journal:—

The party numbered 57 gentlemen, and Mr. Thomas Lee, manager of the mine, officiated as eleconer. Before entering the mine they examined the engines at the entrance: the largest, built by Messrs. Bolekow, Vaughan, and Co., contains two 30-in. cylinders, and is of great power. The drift into which the visitors were about to enter discharges about 2000 tons of stone per day, and is besides the only outlet for the water in the mine. Between 300 and 400 gallons pass through it per minute. Entering the drift at 300 yards above the sea level, Mr. Lee and his party traversed 1100 yards into the earth on a dead level of railway. This cutting throughout its entire length passes through shale. It is of comfortable height and width, and the party suffered no inconvenience beyond the occasional dripping of water from the top, and the mudiness of the footway. The rushing of water towards the mouth of the drift, and a massive erection of timber "props" (the only one in the mine) were, perhaps, the only objects of particular interest noticed in this preparatory stage. In addition to the oil lamps carried by Mr. Lee and the more experienced visitors, here and there a solitary miner stood, lamp in hand, to relieve the melancholy darkness of the progress. At the end of the level, which by the way, was due south, and continuing in a right line from the points where the ironstone begins, is a descent of nearly 700 yards, having a decline of 3 in to the yard. The excitement of the inspection was here at its highest point, and the courteous attention of Mr. Lee and Mr. Williams to the numerous questions of their companions, particularly when the roughness of the way is taken into account, was largely in requisition. It was explained that it is the custom to work one-third of the bulk of ironstone in new workings, leaving the other two-thirds as a prop to be worked out in coming back. After passing a couple of miners standing at the entrance of two dark opposing passages, one extending 3 miles to the westward, and the other 1 mile to the eastward, a curve to the right introduced the party to a stable for the accommodation of 12 horses. Although they never saw daylight during the average fire of six years of their stay below the earth, these animals are remarkably sleek and fresh; and do credit to their grooms. There are altogether about 150 horses in the mine, and, excepting when they meet with an accident, healthy animals stay fully the time already indicated in thorough health and working condition. The party had now arrived exactly at sea level, and near the mouth of the shaft, which is, however, not yet seen. Here is a huge engine, also built by Messrs. Bolekow, Vaughan, and Co., which claims the regard of practical men. It consists of two 20-in. cylinders, and is intended to work the drift proceeding eastwards towards Gulsborough, and is capable of maintaining its position as the effective agent to this purpose when the cuttings in that direction were far exceeded their present limit. Going forward into the boiler-house, the comparatively comfortable temperature of the main drift is exchanged for 120° Fahrenheit, and the more corpulent of the visitors scarcely pause to learn from their police guide, Mr. Lee, that the boilers, over which they have clambered, are of the tubular kind, 30 ft. long and 12 ft. in diameter, and that the engine, which they supply with vital force, ordinarily works five fire pumps, which drain the whole of the drifts in this direction. Having traversed to the extreme southern point of the mine, rising all the way one in twelve to the ear of a distance of about 400 yards, the formen and their friends returned towards the mouth of the shaft, passing in their way a huge fire, maintained for the purpose of venting the mine, at an expenditure of nearly 6 tons of fuel per day, and over which 130,000 cubic feet of air pass every minute. Everybody is now tired, and the advent of the engine is not unelcome, especially after the assurance that the Colwyn safety apparatus is included amongst its excellences. The perpendicular ascent is effected in one minute, and the more nervous congratulated one another upon their safe arrival once more into the daylight. Some climbed to the top of the engine-house, and watch the movement of the huge fly-wheel, 25 ft. in diameter. The descent on the north side is rough and steep through beautiful plantation of firs, and near the bottom is the object of present curiosity—one of Galba's ventilating fans, the only one of its size in England—57 ft. in height and 12 ft. in breadth, and worked by a powerful steam engine, constructed by Messrs. Black and Hawthorne, of Gateshead. The 1500 Mine gives employment to not fewer than 1400 men, being the stay of a village of 3000 inhabitants. The vast extent of the mine may be enquired when it is stated that only three of its numerous workings had been seen during this inspection. Recent experiments attest the capability of the iron which it produces for the highest purposes of the manufacture; and its existence, perhaps, the principal evidence of the abundant increase of wealth in that neighbouring district "whose stones are iron."

BROMFIELD COLLIERY (Flintshire).—A new water-wheel, with a pump-lift, has just been added to this colliery, to give a plentiful supply of clear water to the boilers, and other appliances to increase the power of getting of coal. The above, and the finding of a small pond of water in the workings, has suspended the lifting of coal for a short time. This will, however, be resumed upon completion of all the works, which will largely increase the pumping power in these pits, and likewise the get.

ADMIRALTY COAL.—A Correspondent, writing to the Times, says—"By way of supplement to your excellent leader of to-day on the subject of the recent innovation in the mode of purchasing Admiralty stores, permit me to direct public attention to the article coal, of which a very large quantity is annually consumed in Her Majesty's ships. The quality of the coal raised in every important colliery in the kingdom, with respect to heat-giving power, mode of burning, and capability of resisting what is termed weathering action, has been thoroughly investigated, and is perfectly well known. Accordingly, in buying coal there is no necessity for the kind of experience which is requisite in order to judge of the quality of manufactured articles. But the Admiralty seem to be of a different opinion, inasmuch as they have adopted the same system of purchase for both. Brokers are employed, who receive a percentage on the contract. One agent has been appointed to buy all the coal for the navy, and is remunerated 3d. per ton. This, Sir, I submit, is an inordinate charge, which the House of Commons ought not to sanction. From what I have stated above the coal broker needs no special qualification for his office. The Admiralty have decided it is hoped on satisfactory experimental evidence—that particular coals shall be bought; and all that the broker has to perform is the work of an ordinary clerk and to order the coal. But it requires no little trouble to procure more than 1-10 tons, though the sum paid in the former case would be considerably greater than in the latter. One of the largest colliery proprietors in Wales receives only 6d. per ton royalty on his coal; yet the Admiralty have agreed to pay half as much for the extremely simple business of buying its coal. It may be doubted whether in the whole range of the Government service there is a comparatively more lucrative and less laborious post than that occupied by the individual deputed to provide coal for the fleet. At this time I will not raise the question as to the wisdom of the decision of the Admiralty, but merely use of a mixture of North Country and Welsh coals. The Secretary of the Admiralty a short time ago expressed himself very confidently on that point in the House of Commons; but it is rumoured that an adverse official report concerning the use of such a mixture in Her Majesty's ships has recently been presented at Whitehall. This report, it is stated, is founded on searching trials, made by competent officials of the Admiralty. There ought to be no mystery or concealment in such a matter, and if there be such a report it ought to be published for the benefit of others outside the Admiralty who are interested in steam navigation."

STEEL.—So many kinds of steel are now manufactured that an exact and permanent nomenclature for them is needed. Dr. Wedling, of Berlin, has endeavoured to supply the want. He classes all kinds under two heads—raw steel and fine steel. Of the former he distinguishes five varieties; while fine steel has a much larger number, each of which is named according to its mode of preparation, or after its inventor.

MINING IN THE ISLE OF MAN.—The great success which has attended the Foxdale and Laxey Mines, in the Isle of Man, appears to be leading to the introduction of capital for investing in the minerals of the island, and which will be more fully developed shortly than they have been. The present yield of lead ore is at the rate of nearly 5000 tons a year. Amongst the most promising of investments may be mentioned the Douglas Head Mine, which is being worked by a small limited company, in a very satisfactory manner. The men are sinking on the vein, which is looking very promising indeed. There is very little water to be encountered, and which is easily overpowered by a small high-pressure engine. A discovery of ore may be made at almost any moment, when the necessary work for raising will be energetically pushed forward. Everything looks so very encouraging that there appears little doubt that the venture will become a valuable property, giving employment to a considerable number of men, and so tending to the increased prosperity of the island. The success of the company will also be the means of showing to capitalists that there are valuable mineral deposits in the Isle of Man, which will well repay those who aid in their development—the lead itself being richer in silver than that found in any other part of the kingdom.

NEW WHEEL CHARLOTTE (St. Agnes).—It is now about seven months since operations were commenced here, since which time a steam pumping-engine has been erected and a powerful steam-stamp put to work (with 16 heads more to be added). The engine-shaft has been cut down from surface to the 20 below adit, and the water drained; in a few days the remainder of the lift will be in working order, and the mine dry. Several tribute pitches and tubwork bargains have already been set, and the tributaries getting wages. During the past few days an important discovery has been met with in the bottom of the 10 below adit, of a tin ore worth 30l. per ton, in whole ground, and high hopes are being entertained that this is a valuable piece of unexplored tin ground. They have also set a cross cut to drive to meet with this tin ground, and it is generally believed that it will lead to the opening up of a rich run of tin ground. They are busily engaged in getting a parcel of tin for market. The prospects are considered cheering, and all practical miners of the district think that New Wheel Charlotte will soon pay its cost, and give lasting dividends.

Mr. GEORGE PRESTON WHITE, C.E., consulting engineer to the India Office, and examiner for all appointments of engineers for India, has been appointed consulting engineer for the Japanese Government in the construction of the railways for which the 5 per cent. loan of 1,000,000 has just been raised. It is satisfactory that the Japanese in their first experiment will thus have as much experience as if the works were under British control.

A petition for winding-up the Ebury Lead Mining Company (Limited) is to be heard before Vice-Chancellor Stuart on June 24.



## TO ENGINEERS, &amp;c.

**NEW MOTIVE POWER,**  
COMBINED AIR AND STEAM,  
SAVING ABOVE FIFTY PER CENT. FUEL.

**GALLOWAY AND COMPANY WILL GRANT LICENCES**  
TO ENGINEERS TO APPLY MR. G. BELL GALLOWAY'S INVENTION  
TO ALL DESCRIPTIONS OF ENGINES, as contained in his Patent dated  
January 7th, 1865.  
For terms of Licence, address B. FOTHERGILL, Esq., C.E., 15, George-street,  
Mansion House, London.

## VALUABLE CORNISH MINING MACHINERY.

**MESSRS. J. C. LANYON AND SON** have FOR SALE a very  
superior lot of the above, including—  
24 inch ROTARY ENGINE, with CAPSTAN;  
24 inch ROTARY ENGINE, with CAPSTAN;  
22 inch ROTARY ENGINE, with CAPSTAN;  
Several good BOILERS;  
A large assortment of PITWORK of all sizes; STRAPPING PLATES, rolled  
and fagotted, all of which are secondhand, in good condition, and will be sold  
on very reasonable terms.  
For particulars, apply to—  
**LANYON AND SON, MERCHANTS, REDRUTH.**  
Dated Redruth, Feb. 23, 1870.

## SECONDHAND MINING MACHINERY FOR SALE.

IN FIRST-RATE CONDITION.

**PUMPING ENGINES**, of various sizes,—viz., 80 in., 70 in.,  
60 in., 50 in., 40 in., 30 in.,  
WINDING ENGINES, STAMPING ENGINES, STEAM CAPSTANS, and  
CRUSHERS of various sizes,  
A NUMBER OF BOILERS.  
PITWORK of all descriptions, and all kinds of MATERIALS required for  
MINING PURPOSES.  
TO BE SOLD, AT MODERATE PRICES.

For further particulars, apply to—  
**MESSRS. HARVEY AND CO.,**  
**ENGINEERS AND GENERAL MERCHANTS,**  
**HAYLE, CORNWALL,**  
AND **HAYLE FOUNDRY WHARF, NINE ELMS, LONDON,**  
MANUFACTURERS OF  
PUMPING and other LAND ENGINES and MARINE STEAM ENGINES of  
the largest kind in use, SUGAR MACHINERY, MILLWORK, MINING  
MACHINERY, and MACHINERY IN GENERAL.  
SHIPBUILDERS IN WOOD AND IRON.

## SOUTH EXMOUTH MINE, HENNOCK, DEVON.

**FOR SALE, BY PRIVATE CONTRACT, the following, viz.:**—  
40 in. cylinder PUMPING ENGINE.  
25 in. cylinder WHIM ENGINE, with CRUSHER attached.  
60 fms. 11 and 12 in. PUMPS in shaft.  
30 fms. 11 and 12 in. PUMPS at surface.  
Timber, and various useful mining materials.  
Apply to Capt. JOHN CORNISH, Frank Mills Mine, Christow; or to Mr. J. O.  
HARRIS, Public Accountant, 2, Gandy-street, Exeter.

**FOR SALE, BY PRIVATE CONTRACT, at PAR CONSOLS**  
**MINE, near Par Station, CORNWALL,**  
**EIGHT STEAM ENGINES,**  
Including ONE 80 in. (with BOILERS), for pumping, stamping, and drawing  
purposes; THREE HUNDRED PUMPS, from 6 in. to 20 in.; 11 and door-  
pieces; hammered iron rod plates; rail, scrap, and cast iron; with a large  
quantity of useful MINING MATERIALS.  
For particulars, apply to Capt. PUCKEY, at the counting-house.

**WILLIAMS'S PERRAN FOUNDRY COMPANY,**  
**CORNWALL,**  
MANUFACTURERS OF PUMPING and OTHER ENGINES and GENERAL  
MACHINERY, have FOR SALE:—  
ONE 36 in. PUMPING ENGINE, secondhand.  
ONE 30 in. PUMPING ENGINE, secondhand.  
ONE 8 in. HORIZONTAL HIGH-PRESSURE ENGINE, new.  
Several CORNISH BOILERS.  
Also a large assortment of NEW and SECONDHAND PITWORK, at mode-  
rate prices.  
**LONDON OFFICES, 1 and 2, GREAT WINCHESTER STREET**  
**BUILDINGS, E.C.**

**FOR SALE, cheap, several FIRST-CLASS NEW PORTABLE**  
**STEAM ENGINES**, with all recent improvements, and guaranteed;  
3-horse power, 12-horse power, and 25-horse power, ready for delivery.  
Superior PIT WINDING GEAR supplied at a short notice, suitable for  
Portable Engines.  
**FOR SALE, an excellent SECONDHAND PORTABLE STEAM ENGINE,**  
with a NEW MOILAR MILL.  
Apply to—  
**BARRIORS AND STEWART, ENGINEERS, BANBURY.**

**FOR SALE, A 22 in. cylinder ROTARY ENGINE, 4 ft. stroke,**  
horizontal, condensing, and double beat valves; heavy fly wheel,  
with hammer on shaft; plunger blocks and brasses; together with a CORNISH  
BOILER, about 10 tons, and nearly new, and boiler furniture.  
The same will be sold either as a whole or separately. Also, 11 in. 3 ft. pumps;  
15 in. and 7 in. plungers.  
Apply to WM. OATY and Co., Iron Works, Wadebridge.  
We have a very EXTENSIVE and VALUABLE TIN SETT TO DISPOSE  
OF, immediately adjoining a Tin Mine paying large dividends.

**FOR SALE, THE UNDERMENTIONED ENGINES:—**  
ONE 50 in. cylinder PUMPING ENGINE, with ONE BOILER.  
ONE 30 in. cylinder ROTARY STEAM ENGINE, 7 ft. stroke, with or without  
BOILER, wrought iron fly-wheel shaft, and 10 ton fly-wheel; 12 heads of stamps  
connected.  
ONE 30 in. cylinder PUMPING ENGINE, 9 ft. and 8 ft. stroke, with or with-  
out BOILER.  
ONE 12 in. cylinder ROTARY STEAM ENGINE, with ONE 6 ton BOILER.  
THREE CORNISH BOILERS, from 10 to 12 tons each, in excellent condition.  
Also, several CORNISH CRUSHERS, of various sizes.  
A 60 feet WATER WHEEL, with hammered iron round shaft, cast-iron  
rockets, rings, &c.  
For further information, apply to—  
**W. MATTHEWS, ENGINEER, TAVISTOCK.**  
Tavistock, June 9th, 1870.

**MARTIN'S PATENT PISTON,**  
FOR STEAM AND OTHER ENGINES.  
Effecting a SAVING OF FIFTEEN PER CENT. IN FUEL, with TEN PER  
CENT. ADDITIONAL POWER.

Address—  
**MESSRS. WILLIAMS AND BOLTON,**  
**ST. HELEN'S FOUNDRY,**  
(Patent Piston) SWANSEA.

**WARTON NATIVE OXIDE OF IRON**  
IS SUPERIOR TO ANY OTHER PAINT IN  
BODY AND BRILLIANCE OF COLOUR,  
AND, UNLIKE LEAD PIGMENTS,  
IS INNOCUOUS TO THE WORKMEN USING IT.  
Prices may be obtained on application to the agents—  
**H. J. WALDUCK AND CO.,**  
No. 1, MARKET STREET, MANCHESTER.

**JOHN HORSLEY,**  
IRON AND METAL AGENT,  
**ST. ANN'S SQUARE, MANCHESTER.**

**PERMANENT CONTRACTORS, and COLLIERIES RAILS, in STEEL or IRON**  
Wrought-iron or Steel Weldless Locomotive Carriage and Wagon Tyres,  
Iron and Steel Straight and Cranked Axles, Wheels and Axles, Railway Chairs,  
Fish Plates, Bolts and Nuts, Spikes, Cranes, Jacks, Rivets, Hurdies,  
and Chains.  
Black or Galvanised Telegraph Wire, Fencing Wire.  
BLACK, OILED, and GALVANISED CORRUGATED SHEETS.  
Rolled Iron Joists, Wrought-iron Girders, Roofs, Bridges, Tanks, Boilers, &c.  
Boat Girder, Tank Bridge and Boiler Plates.  
Angle, Tee, and Beam Iron.—Nail Rods, Tin Plates, Hicops, Sheets, Lead, Cop-  
per, Tin, Zinc, and Spelter.  
Hot and Cold Blast Pig Iron, &c., &c.

**MACHINERY FOR MINES AND SLATE QUARRIES.**  
SAWING, PLANING, DRESSING, AND ROCK-BORING MACHINES  
FOR SLATE.

**WATER BALANCES, WATER WHEELS, WINDING AND PUMPING MA-**  
**CHINERY; and PLANT of every description for MINES or QUARRIES.**  
**STEAM ENGINES—STATIONARY, MARINE, or LOCOMOTIVE.**  
BOILERS and GIRDER WORK.  
SHAFTING, PULLEYS, and GENERAL MILLWORK.  
MACHINERY AND GENERAL CASTINGS.  
SPUR and BEVEL WHEELS of any diameter or pitch moulded by machinery.  
DE WINTON AND CO.,  
**UNION IRON WORKS, CARMARON.**

## In the Court of the Vice-Warden of the Stannaries.

Stannaries of Cornwall.

**IN the MATTER of the COMPANIES ACT, 1862, and of the**  
**CLIFFORD AMALGAMATED MINING COMPANY.**—Notice is hereby  
given, that by an Order made in the above Matter, dated the 11th day of June  
inst., CHARLES PARRY, of Scorrier, in the county of Cornwall, Accountant,  
was ABSOLUTELY APPOINTED the OFFICIAL LIQUIDATOR of the above-  
named company. JOSEPH ROBERTS, Solicitor for the Petitioner.  
Dated the 15th day of June, 1870.

## In the Court of the Vice-Warden of the Stannaries.

Stannaries of Cornwall.

**IN the MATTER of the COMPANIES ACT, 1862, and of the**  
**CLIFFORD AMALGAMATED MINING COMPANY.**—Notice is hereby  
given, that ALL CREDITORS of the above-named company are required, on  
or before Wednesday, the 29th day of June inst., to SEND IN THEIR NAMES  
AND ADDRESSES, and the AMOUNTS AND PARTICULARS OF THEIR  
SEVERAL CLAIMS, to Mr. CHARLES PARRY, the Liquidator of the said com-  
pany, at his office, Scorrier, Cornwall.

CHARLES PARRY, Official Liquidator.  
Dated this 15th day of June, 1870.

## In the Court of the Vice-Warden of the Stannaries.

Stannaries of Cornwall.

**IN the MATTER of the COMPANIES ACT, 1862, and of the**  
**ROSEWARNE AND HERLAND MINING COMPANY.**—Notice is hereby  
given, that a PETITION for the WINDING-UP of the above-named company by  
the Court was, on the 11th day of June inst., presented to the Vice-Warden of the  
Stannaries by George Millett Millett Davis, of Hayle, in the county of Corn-  
wall, one of the partners of and in the firm lately carrying on business at Cop-  
perhouse, near Hayle, under the style or firm of "Sandys, Vivian, and Co.,"  
and a trustee for winding-up the affairs of such firm, the said partners therein  
being contributories of the said company, and that the said Petition is directed  
to be heard before the Vice-Warden, at the Prince's Hall, Truro, on Wednesday,  
the 27th day of July next, at Twelve o'clock at noon.

Any contributory or creditor of the company may appear at the hearing and  
oppose the same, provided he has given at least two clear days' notice to the  
petitioner, or his solicitor, or agents, of his intention to do so, such notice to be  
forthwith forwarded to P. P. Smith, Esq., Secretary of the Vice-Warden, Truro.  
Every such contributory or creditor is entitled to a copy of the petition and  
affidavit verifying the same, from the petitioner, or his solicitor, within 24 hours  
after requiring the same, on payment of the regulated charge per folio.  
Affidavits intended to be used at the hearing, in opposition to the petition,  
must be filed at the Registrar's Office, Truro, on or before the 29th day of July  
next, and notice thereof must, at the same time, be given to the petitioner,  
or his solicitor, or agents.

ROBERT M. PAUL, Truro, Cornwall  
(Solicitor to the Petitioner); and  
R. W. CHILDS AND BATTEN, 25, Coleman-street, London  
(Agents of the said Solicitor).  
Dated Truro, the 13th day of June, 1870.

## In the Court of the Vice-Warden of the Stannaries.

Stannaries of Cornwall.

**IN the MATTER of the COMPANIES ACT, 1862, and of the**  
**CLIFFORD AMALGAMATED MINING COMPANY.**—TO BE SOLD, BY  
PUBLIC AUCTION, at the United Mines Account House, upon the Clifford  
Amalgamated Mines, in the parish of Gwennap, in the county of Cornwall, by  
direction of the Official Liquidator of the said company, under the sanction of  
the said Court, on Wednesday, the 29th day of June instant, at Twelve o'clock  
at noon, in One Lot, as a going concern, subject to such conditions as shall be  
then and there produced, all the INTEREST of the COMPANY in the several  
LEASES or SETTS, under which the mining operations of the said company have  
been carried on, together with the WHOLE of the TIN and other ORES,  
LEAVINGS, and HALVANS, in and upon the Mines on the day of sale; and  
also the undermentioned valuable

**PUMPING AND WINDING ENGINES, MACHINERY, PITWORK,**  
**MATERIALS, AND OTHER EFFECTS, viz.:**—

**PUMPING ENGINES.**  
Cardozo's ENGINE, 90 in. cylinder, with four 10-ton boilers.  
Hocking's, 85 in. cylinder, with five 8-ton boilers.  
Garland's, 85 in. cylinder, with five 10-ton boilers.  
Taylor's, 85 in. cylinder, with five 10-ton boilers.  
Loom's, 85 in. cylinder, with seven 10-ton boilers.  
Cassels, 85 in. cylinder, with four 10-ton boilers.  
Clifford, 76 in. cylinder, with five 8-ton boilers.  
Wheal Andrew, 70 in. cylinder, with two 10-ton boilers.  
Eldon's, 30 in. cylinder, with two 9-ton boilers.  
**WINDING ENGINES.**  
Hawke's MAN ENGINE, with crusher attached, 38 in. cylinder, with two  
9-ton boilers.  
Clifford WHIM, 30 in. cylinder, with one 8-ton boiler.  
Clifford CRUSHER, 26 in. cylinder, with one 7-ton boiler.  
Garland's WHIM, with crusher, 24 in. cylinder, with one 7-ton boiler.  
Taylor's WHIM, with crusher, 24 in. cylinder, with one 4-ton boiler.  
Lyle's WHIM, 24 in. cylinder, with one 10-ton boiler.  
Frederick's WHIM, 26 in. cylinder, with one 7-ton boiler.  
Wheal Moor WHIM, 24 in. cylinder, with one 7-ton boiler.  
Consols WHIM, 24 in. cylinder, with one 4-ton boiler.  
Poldroy WHIM, with crusher, 24 in. cylinder, with one 9-ton boiler.  
Frances's WHIM, crusher, and 32 heads of steam stamps, 26 in. cylinder, with  
one boiler.

Also a sawing and screwing machine, turning lathes, &c., &c.; and  
About 20 tons of working and old brass;  
About 4 tons of steel wire rope; and about 20 tons of capstan rope.  
Also about 625 9 ft. pumps—20 in., 19 in., 18 in., 17 in., 16 in., 15 in., and 14 in.  
About 30 6 ft. and 4 ft. pumps;  
About 35 plunger poles—19 in., 17 in., 15 in., 14 in., and 13 in.;  
About 25 stuffing boxes and glands; brasses, &c.;  
About 28 H and top door pieces—20 in., 17 in., 16 in., 15 in., and 14 in.  
About 8 bucket door pieces;  
About 4 underground balance bobs, complete;  
About 21 wood and iron windrods; about 10 tons of caps and loops; about  
10 tons of rod pins, and flange pins.  
About 1500 fms. of 12 in., 13 in., and 14 in. pitch pine rods;  
About 320 pairs of 5 in., 6 in., and 7 in. fagotted rod plates;  
About 150 tons of different size railroad irons; about 20 tons of tramroad  
saddles;  
About 20 tons of flat hempen rope for underground winding;  
About 20 tons of steam whim and other chain;  
About 200 tons of old cast iron; and about 150 tons of old wrought iron.

In the same lot with the above will also be included an immense quantity of  
VALUABLE MATERIALS AND EFFECTS

In general use in mines; together with superior account house furniture, and  
presenting in the whole an opportunity unprecedented in this or any other  
country to speculators in mining property, whose attention is also called to the  
important discoveries recently made by the managing agent of the company of  
several valuable veins in the shallow beds from the 100 fm. level upwards.

To view the above, application should be made to the Bailiffs in charge of the  
same, on the mines, and for further information to—

CHARLES PARRY, Scorrier, Cornwall  
(Official Liquidator); or to  
Mr. ROBERT M. PAUL, Truro, Cornwall  
(Solicitor of the said Official Liquidator).  
Dated Truro, June 15th, 1870.

## VALUABLE MINE AND FISHERY SHARES FOR SALE.

**TO BE SOLD, BY AUCTION, at the Western Hotel, Penzance,**  
on Thursday, June 30th, 1870, at Three o'clock in the afternoon, in such  
lots as may then be determined on, and subject to such conditions as will then  
be produced, the following

**MINE AND FISHERY SHARES, viz.:**—  
7 (200th) SHARES in BOTALLACK MINE, in the parish of St. Just.  
2 (50th) SHARES in WHEAL OWLES MINE, St. Just.  
1 (100th) SHARE in LEVANT MINE, St. Just.  
4 (100th) SHARES in BOSWEDDEN and WHEAL CASTLE MINE, St. Just.  
2 (50th) SHARES in WHEAL BASSET MINE, in the parish of Illogan.  
14 (800th) SHARES in WHEAL MARGARET MINE, in the parish of Lelant.  
16 (50th) SHARES in TRELYON CONSOLS MINE, in the parish of Lelant.  
61 (300th) SHARES in the CORNWALL FISHING COMPANY, at St. Ives.  
The above shares form part of the estate of a gentleman recently deceased,  
and are offered for sale solely on that account.  
Further particulars may be obtained on application to H. THOMAS, Solicitor,  
2, Clarence-street, Penzance.—Dated June 6th, 1870.

## VALUABLE LEAD MINE FOR SALE.

**TO BE SOLD, BY PRIVATE OFFER, all that valuable LEAD**  
**MINE, called "OLD CARRS," or "CARRS WEST OF NENT,"** situated  
in the midst of, and surrounded by, the rich and prolific mines of the London  
Lead Company, at NENTHEAD.

The mine is held under lease of the Lords Commissioners of the Admiralty,  
and is renewable on its termination. The west cheek of the vein has been  
wrought from time immemorial, and has been very productive, ore having been  
raised as low as 7s. per ling. The east cheek of the vein is thrown down, and  
remains entirely unexplored. Some of the small shareholders are unwilling to  
embark in the undertaking of exploring it, which necessitates a sale.  
Further particulars may be known on application to Mr. JOSEPH BLACKLOCK,  
Nenthead, the agent; Mr. WILLIAM HALL, Coal Merchant, Alston; or Mr.  
SHAW YOMAN, Garrigill, any of whom will receive offers in writing until the  
1st day of July next ensuing.—Nenthead, 1st June, 1870.

## FOR SALE BY PUBLIC AUCTION, AT HAYLE.

**THE ENGINE WORKS, FOUNDRIES, YARDS, SHIP**  
**BUILDING YARD, GAS WORKS, STABLES, BUILDINGS, HOUSES,**  
and other property of Messrs. Sandys, Vivian, and Co., WILL BE SOLD, BY  
PUBLIC AUCTION, in the course of a few weeks, unless previously disposed of  
by private contract, either as a whole, or in lots, to suit the convenience of  
purchasers.  
Full particulars may be had on application, personally or by letter, at the  
Copperhouse Foundry Office, Hayle.—June, 1870.

## TO BE SOLD, BY PRIVATE CONTRACT, with IMMEDIATE POSSESSION, all those works known as the

CASTLEFORD IRON WORKS,

Situate at CASTLEFORD, near LEEDS, comprising:—  
A SMELTING FURNACE; a BLOWING ENGINE, of 25 horse power, with  
BOILERS, &c., in perfect repair, with patent flues and hot air stove.  
Also, TWENTY COKE OVENS, the heat from which is conducted to the  
boiler; also a water lift, weighing machine, smiths' shop, offices, &c., and about  
four acres of freehold land, in which exist excellent beds of clay and sand.  
The North-Eastern Railway, which adjoins on one side, and the Aire and  
Calder Navigation, which adjoins on the other side of the works, afford every  
facility for receiving material, and sending away the manufactured produce.  
A small foundry is attached to the works, which may be purchased at the  
same time.  
A portion of the purchase money may, if required, remain on security of the  
premises.  
If NOT SOLD, the WORKS WILL BE LET.  
For further particulars, apply to Mr. GEORGE GRAHAM, C.E., Low Beechburn  
Colliery, near Darlington; or to Messrs. NORTH and SONS, Solicitors, Leeds.

## TO BE SOLD, OR LET, the HIRWAIN IRON AND BRICK WORKS, situated at HIRWAIN, near ABERDARE, in the counties of

GLAMORGAN and BRECON, adjoining the Hirwain Station of the Great  
Western Railway.  
The IRON WORKS comprise FOUR massive stone-built BLAST FURNACES,  
with powerful blast-engine and boilers, arrangements for utilising the waste  
gases, hot-air stoves, and all the appliances necessary to make 500 to 700 tons of  
pig-iron weekly; also a spacious forge and mill, with powerful engine trains of  
rolls, 18 puddling furnaces, forges, steam hammers, and all conveniences, equal  
to the production of 200 tons of puddled bars weekly, with iron foundry, cupola,  
smiths' shops; also brick works, recently built, capable of making about 20,000  
bricks per week.

These works will either be sold at a valuation, or let on a royalty or fixed rent  
for a term of years, not less than seven, and not exceeding fifty.  
The works are most conveniently situated adjoining the Vale of Neath section  
of the Great Western Railway, and are provided with every requisite accommo-  
dation as regards cottages, railways, tramways, sidings, and are admirably  
situated for the transit of the produce to Liverpool, Cardiff, Swansea, Newport,  
&c., being in connection with the whole railway system of the United King-  
dom. Arrangements can be made for an ample supply of mine fuel and lime-  
stone, also of the best Graig fireclay for the manufacture of bricks, at reasonable  
prices, all of which are got in the immediate vicinity of the works.  
Full particulars can be obtained on application to the—  
HIRWAIN COAL AND IRON COMPANY (Limited), 11, Bute-crescent, Cardiff;  
WM. THOS. LEWIS, Esq., Bute Mineral Estate Office, Aberdare;  
Mr. B. WILLIAMS, Hirwain, near Aberdare; or  
Mr. WM. MORRISON, 46, Coal Exchange, London, E.C.

## STIRCHLEY IRON WORKS, SOUTH SHROPSHIRE, TO BE LET, BY PRIVATE TREATY, comprising the MINERAL PROPERTIES known as the

DARK LANE, HINKSHAY, and LANGLEY ESTATES,  
Containing about TWO HUNDRED and EIGHT ACRES, having SEVEN-  
TEEN PITS in WORK, with FOUR BLAST FURNACES (two now in blast),  
TWENTY-SIX PUDDLING FURNACES (eighteen now in work), and TWO  
BAR, ONE PLATE, and ONE SHEET MILL.

These works were for many years carried on by the Boffield family, and lie  
between the estates of the Coalbrook Dale and Lilleshall Companies, within two  
miles of Oakengates, and four of Wellington.  
The Wellington and Coalport branch of the London and North-Western  
System passes through the works, and affords every facility for the transport  
of materials and manufactured iron.  
The plant may be purchased or rented.  
For further particulars, and to treat, apply to Messrs. URWICK and MARSTON,  
Solicitors, Ludlow.

## TO COAL PROPRIETORS, AND OTHERS.

**TO BE LEASED, the whole of the VEINS of COAL under**  
**WAINBARRA FARM, situate in the parish of RUDRY, in the county**  
**of GLAMORGAN, containing about 155 acres.** This property contains the ce-  
lebrated LLANTWIT COAL, worked by the executors of the late THOMAS  
POWELL, Esq., and under the adjoining land by W. S. CARTWRIGHT, Esq., and  
in the neighbourhood by the ESCHLEY COAL COMPANY, being of superior  
quality as gas and house coal, &c., and it also contains the thick group of veins  
of coal, including the renowned RISCAL BLACK VEIN, all of which can be won  
at a reasonable depth.  
A railway passes through the property to Cardiff and Newport, distance to  
either place only about eight miles, thus having great advantage, being so near  
to ports of shipment.  
Further particulars can be obtained on application to Mr. HENRY MORGAN,  
Mineral Agent, &c., Bute Villa, Llantrisant, Glamorganshire.

## VALUABLE MINING ESTATE.

**TO BE SOLD, BY PRIVATE CONTRACT, a FREEHOLD**  
**ESTATE, near MOLD; and also a LEASE of the VALUABLE COAL and**  
**OTHER MINES** lying thereunder.  
The coal has been worked, and a railway is laid down from the pit's mouth  
into the Mold branch of the Chester and Holyhead Railway.  
The plant comprises powerful stationary engines, locomotive, &c.  
For further particulars, and to treat, apply to Messrs. TYNDALL, JOHNSON  
and TYNDALL, Solicitors, Birmingham.

## COAL FIELD TO LET.

**TO BE LET, for Nineteen Years, with entry at Lammas next,**  
the COAL FIELD OF CLUNY, in the parishes of KINGLASSIE and  
AUCHTERDERRAN, and county of FIFE, with the COLLIERIES' HOUSES, all  
as lately possessed by Messrs. LANDALE and BOYD, with a trifling alteration in  
the marches, and with the exception of some of the houses formerly occupied  
in connection with the colliery.

The coal field has been fitted up with MACHINERY and PLANT of an excel-  
lent description, and suitable for the field, and a tenant may take the machinery  
and plant at valuation, or pay interest on the value thereof, as may be arranged.  
The coal in the adjoining lands has been wrought for many years, and proved  
to be of excellent quality, and that now to be let is expected to be equally good.  
If desired, a FIELD of LAND can be LET along with the coal field.  
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WILSON, C.S., 16, St. Andrew-square, Edinburgh; Messrs. J. G. H. GEDDES,  
9, Melville-street, Edinburgh; or to Mr. J. L. GOW, Rath Kirkaldy, who  
will give directions for showing the boundaries, and offers will be received up  
till 30th June next.

**TO BE LET, BY PRIVATE CONTRACT, EYNANT SLATE**  
**QUARRY, situate in the parish of LLANWYDDUN, MONTGOMERY-**  
**SHIRE.** The vein is about 20 yards wide, wedged on both sides with hard  
rock; the slate of good quality, and the set contains about 1800 acres.  
For further particulars, apply to Mr. EDWARD DAVIES, Mawddy Cottages,  
Dinas Mawddy.

## WELSH LEAD MINE.

**FOR SALE, the LEASE of a VALUABLE LEAD MINE, close**  
to the celebrated Van and Van Consols Mines, for £2000. A good lode  
has been discovered.  
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## BRICK-MAKING MACHINERY FOR SALE.

**FOR SALE, BRICK-MAKING, &c., which has only been a**  
short time in use, consisting of patent DRY CLAY MILL, by Bradley and  
Craven; 30 ft. diameter, with extra heavy rollers for crushing strong shale;  
elevators, pug mill, or mixing pan; tables, barrows, &c.  
Also a number of 3/4 yard WAGONS, 2 ft. 9 in. gauge.  
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**FOR SALE, BY PRIVATE CONTRACT, part of a most**  
**VALUABLE SLATE AND SLAB PROPERTY, held on lease for a term**  
**of 40 years, from March, 1863, at 1-16th royalty.**  
The property advertised is a counterpart of a slate and slab range now in  
work, the merits of which will bear the fullest investigation.  
Both the slab and slate veins are unusually thick, and require, comparatively,  
but small capital to return large profits.  
The property has the advantage of a splendid water power, and a tramway  
passes through the set to the shipping port—distance about six miles.  
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**FOR SALE, BY PRIVATE CONTRACT, at WREXHAM**  
**COLLIERY, WREXHAM, DENBIGHSHIRE, TWO large T BOBS**  
**and TWO ROCKERS, with fittings complete; about 155 yards of 19 inch PUMPS,**  
faced; several 18 inch CLACK PIECES, working barrels, buckets, and con-  
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12 inch ditto. Also a 21 inch high-pressure BEAM ENGINE, complete, and  
other PUMPING MACHINERY.  
For particulars, apply to—  
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**PERSONS DESIROUS OF HAVING MAPS of the following**  
**DISTRICTS, or EITHER of THEM, will oblige by addressing their orders**  
to the undersigned:—

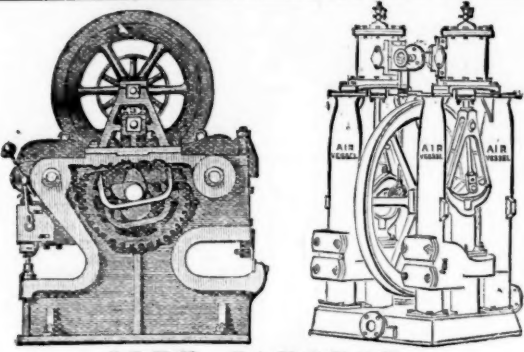
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**MESSRS. G. W. AND T. CRAIK**  
 ARE PREPARED TO  
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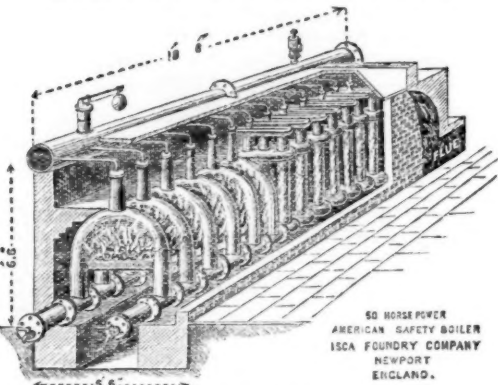
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**FOR MINES.**  
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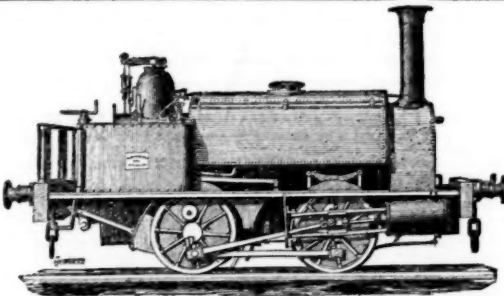
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 MACHINES, PATENTEE OF THE DOUBLE CAM LEVER  
 PUNCHING MACHINE, BAR SHEARS, AND RAIL  
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50 HORSE POWER  
 AMERICAN SAFETY BOILER  
 ISCA FOUNDRY COMPANY  
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This boiler is safe from destructive explosions.  
 It evaporates 11 lbs. of water per lb. of coal.  
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 At 75 lbs. pressure the pyrometer applied in the fine only shows 360° of heat in  
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 It occupies only one-half the space of a Cornish boiler.  
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 Duplicate parts are always in stock for repairs.  
 A BOILER MAY BE SEEN AT WORK on application at NEWPORT.



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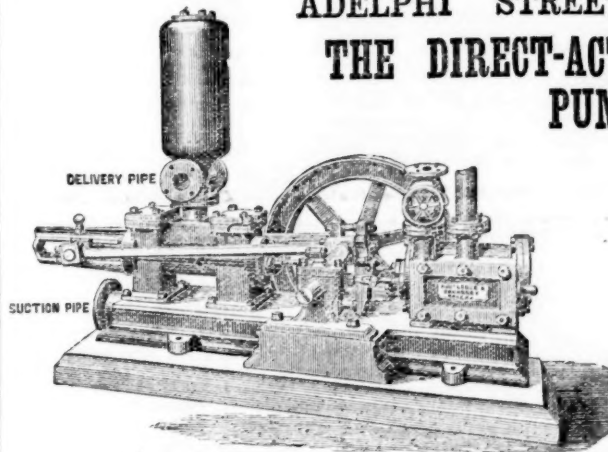
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ENGINEERS,

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THE DIRECT-ACTING DOUBLE HORIZONTAL  
**PUMPING ENGINE.**



THESE PUMPING-ENGINES are especially adapted for  
 FORCING WATER OUT OF MINES, being simple in con-  
 struction and reliable. They have now been at work many  
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**PUMPS AND  
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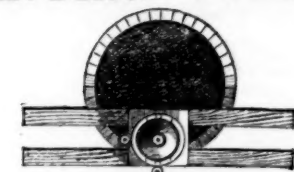
Especially designed for colliery purposes; also, AIR-COM-  
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Further information and prices forwarded on  
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## DIRECT-ACTING PUMPING ENGINE.



PLAN VIEW, SHOWING THE ENGINE  
 OVER THE COAL PIT.

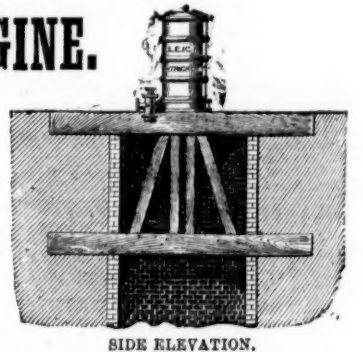
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WITH

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 FOR MINING PURPOSES.



This Engine is specially commended to Mining Engineers and others, as  
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Haulage along inclined drifts is easily and cheaply effected.  
 The expense of sinking new shafts is greatly reduced, neither founda-  
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It is available not only for winding, but for pumping, sawing, &c.—a  
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It can be very quickly removed (being self-propelling), and fixed in any  
 desired position.

Prices and full particulars on application as above, and also references to  
 view the Engine in successful work near Derby, Carnarvon, Haverfordwest,  
 Darlington, and other places.



# GWYNNE AND CO., ENGINEERS, ESSEX STREET WORKS, STRAND, LONDON, W.C.

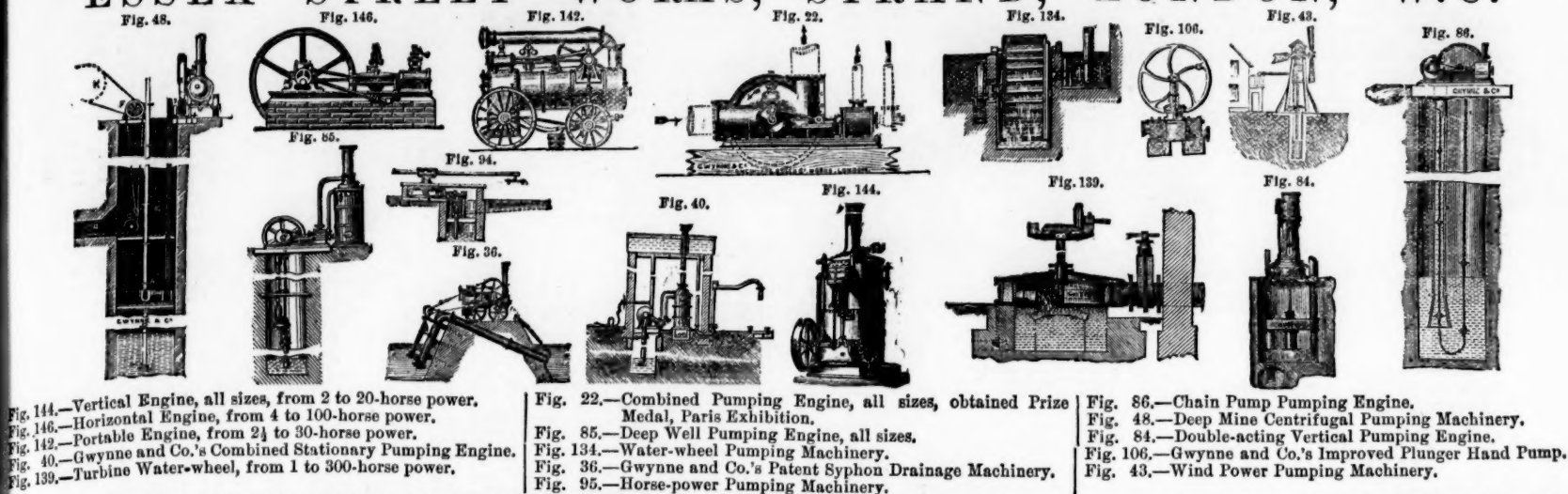


Fig. 144.—Vertical Engine, all sizes, from 2 to 20-horse power.  
Fig. 146.—Horizontal Engine, from 4 to 100-horse power.  
Fig. 142.—Portable Engine, from 2½ to 30-horse power.  
Fig. 40.—Gwynne and Co.'s Combined Stationary Pumping Engine.  
Fig. 139.—Turbine Water-wheel, from 1 to 300-horse power.

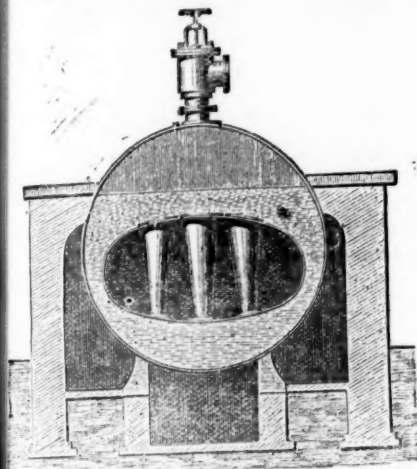
Fig. 22.—Combined Pumping Engine, all sizes, obtained Prize Medal, Paris Exhibition.  
Fig. 85.—Deep Well Pumping Engine, all sizes.  
Fig. 134.—Water-wheel Pumping Machinery.  
Fig. 36.—Gwynne and Co.'s Patent Syphon Drainage Machinery.  
Fig. 95.—Horse-power Pumping Machinery.

Fig. 86.—Chain Pump Pumping Engine.  
Fig. 48.—Deep Mine Centrifugal Pumping Machinery.  
Fig. 84.—Double-acting Vertical Pumping Engine.  
Fig. 106.—Gwynne and Co.'s Improved Plunger Hand Pump.  
Fig. 43.—Wind Power Pumping Machinery.

Steam Engines of all kinds and sizes, Hand and Steam Fire Engines, Water Wheels, Hydraulic Lifts, Cranes and Jacks, Steam and Water Valves, Hydraulic Presses, Sheep Washing Machinery, &c., &c.  
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Section of the "Galloway" Boiler, showing arrangement of back flues, the furnaces being of the same construction as in the common two-flued boiler.

The above TUBES are made with such an amount of taper as will allow the bottom flange to pass through the hole in the upper side of the boiler flue, which renders their introduction into ordinary fluid boilers a simple operation, and with the following advantages:—  
The POWER of the BOILER is CONSIDERABLY INCREASED, and the FLUES ARE MATERIALLY STRENGTHENED.  
The CIRCULATION of the WATER is MUCH IMPROVED, and UNEQUAL EXPANSION, with its attendant evils, PREVENTED.  
LIABILITY TO PRIME IS LESSEMED.

These Tubes have now been in use upwards of fourteen years, and above 50,000 are in work in various parts of the country with the best results.  
They can be fixed by any boiler-maker, but can only be obtained from the Patentees.

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MANCHESTER,

Makers of Wrought-iron Parallel Tubes, 40s. p. cwt.

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AS PER SKETCH ANNEXED.

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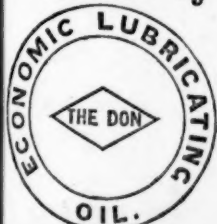
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A SAVING OF ABOUT FIFTY PER CENT.

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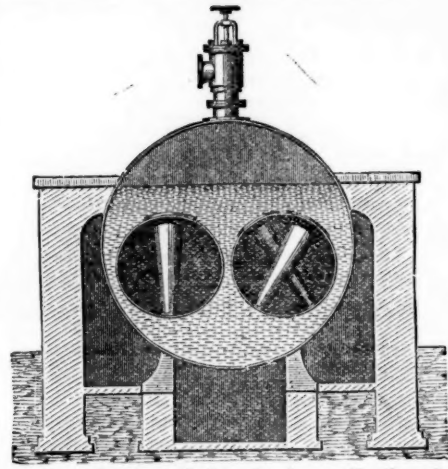
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It never "CLOGS," nor leaves any "GUMMY" deposit upon the bearings, which, therefore, never require cleaning or scraping, whereby much time, labour, and expense are saved. It is in use and approved of by the majority of the iron and coal companies in West Lancashire, where it was first introduced but a few months ago, also by several ocean steamer and ferry proprietors on the Mersey and elsewhere.

Printed particulars and testimonials sent, post free, to any address.

DUNCAN BROTHERS, 17, Unity-buildings, Lord-street, Liverpool.



Section of Cornish Boiler, showing application of the "Galloway" Tubes.



By a special method of preparation, this leather is made solid, perfectly close in texture, and impermeable to water; it has, therefore, all the qualifications essential for pump buckets, and is the most durable material of which they can be made. It may be had of all dealers in leather, and of

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A COMPLETE GUIDE TO THEIR  
LAWS, USAGES, LOCALITIES, AND STATISTICS.

By JOHN ROBERT PIKE.

Author of "Facts and Figures," and other works on the Mines of Cornwall and Devon.

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## IRON AND COAL COMPANIES.

Shares.	Company.	Paid.	Price.
£100	John Abbott and Co. [L.]	7 10 0	10 8 dis.
50	Blaenavon Iron and Steel Co. [L.]	7 10 0	—
100	Bolckow, Vaughan, and Co. [L.]	20 0 0	32 37 pm.
100	Brown, John, and Co. [L.]	70 0 0	11 10 dis.
100	Consett Iron Co. [L.]	7 10 0	23 3 pm.
100	Cumtrel and Co. [L.]	50 0 0	13 11 dis.
22	Edwin Vale Co. [L.]	27 10 0	6 1/2 5/4 dis.
15	Hopkins, Gilkes, and Co. [L.]	10 0 0	3 1 pm.
10	Midland Iron Co. [L.]	5 0 0	20 19 1/2 pm.
12 1/2	Mersey Steel and Iron Co. [L.]	11 10 0	8 1/2 7 1/2 pm.
250000	Norwood Coal and Iron	0 6 6	par. 1/2 pm.
25	Palmer's Shipbuilding and Iron Co. [L.]	25 0 0	par. 1/2 pm.
25	Doitto	25 0 0	par. 1/2 pm.
100	Parkgate Iron Co. [L.]	65 0 0	par. 6 dis.
25	Patent Shaft and Axle Co. [L.]	10 0 0	5 pm.
25	Rhymney Iron Co. [L.]	50 0 0	31 23 dis.
15	Doitto	15 0 0	9 10 dis.
50	Rhodes Iron Co. [L.]	50 0 0	22 dis.
100	Rhodes Iron and Coal Co. [L.]	55 0 0	16 14 dis.
100	Staveley Iron and Coal Co.	60 0 0	40 41 pm.
100	Doitto	10 0 0	8 1/2 pm.
100	Thames Iron Company	100 0 0	—
100	Wigan Coal and Iron Co.	150 0 0	10 dis.
75	Doitto	75 0 0	10 dis.

## THE MINING SHARE LIST

BRITISH DIVIDEND MINES.												
Shares.	Mines.	Paid.	Last Pr.	Business.	Total divs.	Per share.	Last paid.					
15000	Alderley Edge, c. Cheshire*	10 0 0.	—	—	10 0 0.	0 8 0.	0 5 0.	Jan. 1870				
6000	Boswell, t. c. St. Just	1 0 0.	—	—	1 0 0.	0 2 0.	0 2 0.	Apr. 1870				
200	Botallack, t. c. St. Just	91 5 0.	280	270 290	575 5 0.	10 0 0.	0 0 0.	Apr. 1870				
20000	Brooklyn, t. Cardigan*	3 10 0.	3	3 3/4	2 8 0.	0 1 0.	1 6 0.	Apr. 1870				
5000	Bwlch Consols, s-l, Cardigan*	4 0 0.	3 1/2	3 1/2 3 1/2	0 9 0.	0 2 0.	May 1870					
6400	Cashwell, t. Cumberland*	2 10 0.	3	—	0 9 0.	0 2 0.	Dec. 1869					
216	Carroll, s-l, Newlyn	15 5 7.	5	4 5	16 15 0.	0 10 0.	Aug. 1869					
1280	Chanticleer, t. Flint	0 7 8.	—	—	0 1 0.	0 0 0.	Nov. 1869					
2450	Cook's Kitchen, c. Illogan†	19 14 9.	21	21 23	3 13 0.	0 7 6.	Apr. 1870					
1000	Cornwall Hematite†	10 0 0.	—	—	0 10 0.	0 10 0.	Mar. 1870					
509	Creechgrawse and Penkyl, t.	—	—	—	2 5 0.	1 5 0.	Apr. 1868					
867	Cwm Erlyn, t. Cardiganshire*	7 10 0.	—	—	31 13 0.	0 5 0.	Apr. 1870					
128	Cwmystwith, t. Cardiganshire*	60 0 0.	—	—	387 10 0.	2 0 0.	July 1869					
300	Dervent Mines, s-l, Durham	300 0 0.	—	—	177 0 0.	2 10 0.	July 1868					
1294	Devon Gl. Consols, c. Tavistock†	3 18 6.	115	100 110	1145 0 0.	4 0 0.	May 1870					
636	Dine Dong, t. Gwilt†	49 14 6.	18	130 135	242 2 6.	3 10 0.	June 1870					
1432	Doleath, c. t. Camborne	32 4 6.	135	139 135	12 13 0.	0 10 0.	June 1870					
12800	Drake Walls, t. Calstock†	2 10 0.	114	134 134	1 2 3 0.	1 3 0.	Apr. 1870					
6144	East Cardigan, c. St. Cleer†	2 14 6.	434	434 5	14 11 6.	0 2 0.	July 1867					
300	East Darnen, t. Cardiganshire*	32 0 0.	—	—	182 10 0.	2 0 0.	Feb. 1870					
6400	East Pool, t. c. Pool, Illogan	0 9 9.	8	8 8 1/2	10 3 3 0.	4 0 0.	May 1870					
1906	East Wheel Lovell, t. Wendron	3 9 0.	31	34 1/2 35 1/2	10 16 0.	2 0 0.	Apr. 1870					
2800	Foxdale, t. Isle of Man*	23 0 0.	—	—	75 13 0.	0 10 0.	June 1870					
2500	Frank Mills, t. Chiverton	3 18 6.	3	2 1/2 3	5 6 0.	2 6 0.	Apr. 1870					
2500	Ganton, c. Tavistock	3 10 0.	—	—	0 3 0.	0 3 0.	Jan. 1868					
15000	Great Brexey, t. Isle of Man*	4 0 0.	19	18 1/2 19	12 13 0.	0 10 0.	June 1870					
3000	Great Northern Manganese*	5 0 0.	—	—	—	5 p.c.	Feb. 1869					
5008	Great Wheel Vor, t. c. Helston†	40 0 0.	11	9 1/2 10 1/2	16 8 6.	0 2 6.	Mar. 1870					
1024	Herodsfoot, t. near Liskeard†	8 10 0.	42	39 41	52 10 0.	1 10 0.	Feb. 1870					
12000	Holmshush and Kelly Bray, c.	1 0 0.	—	—	0 3 0.	0 1 0.	Nov. 1869					
8000	Ironmasters' Company*	10 0 0.	—	—	0 9 0.	0 9 0.	Feb. 1870					
10000	Killaloe, t. Tipperary	1 0 0.	—	7 1/2 7 1/2	0 7 6.	6 p.c.	Mar. 1870					
165	Levant, c. t. St. Just	8 1 1.	—	—	1101 0 0.	2 0 0.	Aug. 1869					
400	Lisburne, t. Cardiganshire*	18 15 0.	—	—	239 0 0.	2 0 0.	Jan. 1870					
3000	Mace-y-Safn, t. Flint*	20 0 0.	—	—	4 0 0.	0 5 0.	Oct. 1868					
9000	Marke Valley, c. Cardigan	4 10 6.	7	7 7 1/2	6 1 0.	0 4 0.	Apr. 1870					
1800	Minera Mining Co. t. Wrexham*	25 0 0.	—	—	273 3 5.	0 5 0.	May 1870					
20000	Mining Co. of Ireland, c. t. c.	7 0 0.	774	7 1/2 7 1/2	0 2 5 0.	2 5 0.	Jan. 1870					
40000	Mynydd Iron Ore*	3 10 0.	114	1 1 1/2	0 16 0.	0 5 0.	Jan. 1870					
2000	North Levant, t. c. St. Just	10 12 0.	114	9 1/2 10 1/2	1 5 0.	0 10 0.	Mar. 1870					
200	Parys Mines, c. Anglesey*	50 0 0.	—	—	182 10 0.	2 10 0.	Aug. 1868					
5000	Pembillys, t. St. Agnes	50 0 0.	—	6	1101 0 0.	2 0 0.	Apr. 1870					
2000	Pembillys, t. c. Llaninhon	50 0 0.	—	—	456 10 0.	7 0 0.	May 1870					
2000	Poldice, t. c. Gwennap	10 0 0.	—	—	0 10 0.	0 10 0.	May 1870					
12800	Prince of Wales, c. Calstock	10 6 8.	34	34 1	0 10 0.	0 1 0.	Nov. 1869					
1150	Providence, t. c. Uny Lelant†	10 6 7.	41	40 42 1/2	97 2 6.	1 10 0.	Mar. 1870					
4869	Rosewall Hill & Ransom, t.	4 0 0.	114	134 134	0 1 6 0.	1 6 0.	May 1870					
512	South Cardigan, c. St. Cleer†	1 5 0 0.	280	270 280	642 10 0.	5 0 0.	Mar. 1870					
6300	South Darnen, t. Cardigan*	3 6 6.	—	—	1 0 0.	0 2 6.	Nov. 1869					
937	South Wh. Croft, c. Illogan	24 10 0.	9	8 1/2 9	3 0 0.	0 10 0.	June 1870					
496	St. Wh. Francis, c. Illogan†	18 18 9.	17	17 19	874 13 0.	1 0 0.	Mar. 1868					
242	Spear Moor, t. St. Just	36 17 9.	20	19 20	12 15 0.	0 1 0.	Feb. 1870					
400	St. Ives Consols, t. St. Ives†	10 15 0.	9	8 9	0 10 0.	0 10 0.	May 1869					
8771	St. Just Amalgamated, t.	3 10 0.	—	—	0 2 6 0.	2 6 0.	Nov. 1869					
408	Summer Hill, t. Mold	3 18 6.	—	—	2 5 6 0.	0 5 0.	Feb. 1868					
6000	Tincroft, c. t. Pool, Illogan	9 0 0.	35	35 36	24 8 6.	1 7 6.	Apr. 1870					
2000	Trumpet Cons., t. Helston	11 10 0.	26	25 27	10 17 0.	0 15 0.	Apr. 1870					
12000	Van, t. Llanidloes†	4 5 0 0.	80	80 82 1/2	43 7 6.	2 0 0.	Mar. 1870					
12000	Van, t. Llanidloes†	4 5 0 0.	80	80 82 1/2	43 7 6.	2 0 0.	Mar. 1870					
2000	West Godolphin, t. c. Breage	0 1 0.	—	—	0 3 0.	0 1 0.	July 1868					
2582	West Great Work, t. c. Breage	5 11 0.	—	—	0 2 0.	0 2 0.	June 1868					
512	West Wheel Frances, t. Illogan	106 15 0.	30	27 29	4 10 0.	1 10 0.	Oct. 1867					
400	W. Wheel Seton, c. Camborne†	47 0 0.	130	120 125	659 10 0.	3 10 0.	June 1870					
512	Wheel Bassett, c. Illogan†	8 2 8 0.	89	90 100	632 10 0.	1 0 0.	June 1870					
512	Wheel Janet, s-l, Kea	10 15 0.	48	48 50	30 10 0.	1 10 0.	May 1870					
4924	Wheel Mary, t. c. Uny Lelant†	8 10 6.	14	13 14	12 2 6.	0 15 0.	May 1870					
806	Wheel Margaret, t. Uny Lelant†	13 17 6.	8	7 9	77 15 0.	0 10 0.	May 1870					
1024	Wheel Mary Ann, t. Menheniot†	8 0 0.	11	9 10	70 17 6.	0 10 0.	June 1870					
100	Wh. Mary Hutchins, Plympt.	2 12 6.	—	—	0 10 0.	0 5 0.	Aug. 1869					
80	Wheel Owles, t. St. Just†	70 0 0.	—	—	453 3 0.	22 10 0.	May 1870					
396	Wheel Seton, t. c. Camborne	60 0 0.	24	30 32	254 15 0.	2 0 0.	Feb. 1868					
17900	Wicklow, c. t. Wicklow	2 10 0.	9 1/2	—	60 3 0.	0 5 0.	Sept. 1868					
FOREIGN DIVIDEND MINES.												
Shares.	Mines.	Paid.	Last Pr.	Bus.	divs.	Per share.	Last paid.					
25000	Alamilllos, t. Spain†	2 0 0.	2	1 1/2 2	0 10 6.	0 2 0.	Mar. 1870					
30000	Australian, c. South Australia†	7 7 6.	—	—	0 1 6 0.	0 6 0.	Aug. 1869					
15000	Cape Copper Mining†	7 0 0.	17	17 18	5 17 6.	0 10 0.	May 1870					
50000	Central Australian Association†	0 0 0.	—	—	0 6 0.	0 1 0.	July 1869					
10000	Copahué Mining Co. Chile†	16 10 0.	2	1 2	4 0 0.	0 4 0.	Apr. 1868					
75162	Don Pedro North del Rey†	0 14 0.	2 1/2	2 1/2 3 1/2	2 3 0.	—	—					
10000	English and Australian, c.	2 10 0.	—	—	—	0 9 0.	Feb. 1869					
20000	Fortuna, t. Spain†	2 0 0.	8	2 1/2 3 1/2	2 0 10 0.	0 3 0.	Mar. 1870					
20000	Gen Mining Assoc. Nova Scotia†	20 0 0.	6	4 6	23 10 0.	0 15 0.	June 1867					
8000	Gonnessa, t. Sardinia†	5 0 0.	—	—	—	10 p.c.	Aug. 1868					
40000	Kapunda Mining Co., Anstrat†	1 0 0.	—	3 1/2 3 1/2	0 1 0.	0 6 0.	Nov. 1868					
15000	Kent Valley, t. Spain†	3 0 0.	—	4 1/2 4 1/2	12 8 4.	0 5 0.	Mar. 1870					
50000	Panfillos, t. Chile†	5 0 0.	—	2 1/2 2 1/2	10 13 0.	0 10 0.	May 1870					
10000	Pontalraud, s-l, France†	2 4 0.	17	16 17	7 1 8.	1 15 0.	Nov. 1869					
20000	Port Phillip, c. Clunes†	1 0 0.	—	3 1/2 3 1/2	1 6 0.	0 1 6.	Jan. 1870					
10000	Scottish Australian Min. Co. t.	1 0 0.	—	3 1/2 3 1/2	6 p.c.	—	Apr. 1870					
11000	St. John del Rey, Brazil†	15 0 0.	21	20 25	81 10 0.	4 5 0.	Dec. 1867					
4000	Swedish Sulphur Ore*	2 10 0.	—	—	7 1/2 p.c.	—	Dec. 1868					
13500	Vancouver Coal Mining†	6 0 0.	7 1/2	7 1/2 8	3 18 6.	0 15 0.	July 1870					
10000	Victoria (London) [25000 41 pd., 25000 12s. 6d. 1/2]	2 10 0.	—	—	0 9 7 0.	0 7 0.	May 1869					
40000	West Canada Mining Co.*	1 0 0.	—	—	0 19 6.	0 2 6.	May 1866					
NON-DIVIDEND FOREIGN MINES.												
Shares.	Mines.	Paid.	Last Pr.	Bus.	divs.	Per share.	Last paid.					
50000	Almaden and Tinto Consolidated, s. Mexico†	0 10 0.	—	—	—	—	—	Mar. 1870				
25000	Anglo-Algerian, c. Algeria	3 0 0.	—	—	—	—	—	—				
50000	Anglo-Argentine, c. Argentine Republic†	1 0 0.	—	—	1 1/2 1 1/2	—	—	—				
50000	Anglo-Australian, c. Victoria*	0 11 0.	—	—	—	—	—	—				
50000	Anglo-Brazilian, c. Brazil†	1 7 6.	—	—	—	—	—	—				
25000	Anglo-Italian, g.†	17 17 6.	—	—	—	—	—	—				
50000	Australian United, c. Victoria†	2 10 0.	—	—	3 1/2 3 1/2	—	—	—				
40000	Braganza, g. Brazil	0 10 0.	—	—	—	—	—	—				
50000	Capula, s. Mexico†	2 0 0.	—	—	2 1 2	—	—	—				
50000	Chontales, g. s. Nicaragua†	6 0 0.	—	—	1 1/2 1 1/2 1 1/2	—	—	—				
50000	Culapa, g. Minas Geraes, Brazil	0 12 0.	—	—	—	—	—	—				
50000	Elcipe, g. California†	5 0 0.	—	—	—	—	—	—				
50000	El Estrecho, t. Colombia†	0 10 0.	—	—	—	—	—	—				
50000	Fortune Copper Mining Co. of Western Australia	2 10 0.	—	—	—	—	—	—				
50000	Frontino and Bolivia, g. New Granada†	1 18 0.	—	—	1 1 1 1/2	—	—	—				
50000	General Brazilian†	0 15 0.	—	—	—	—	—	—				
50000	Guerrero, g. Mexico (total cap.,=50,000 shares of £1)	0 10 0.	—	—	—	—	—	—				
50000	Imperial Ottoman, s-l, Turkey*	1 0 0.	—	—	—	—	—	—				
50000	Javali, g. Nicaragua	2 0 0.	—	—	—	—	—	—				
7927	Lusitania (Portugal)†	3 0 0.	—	—	—	—	—	—				
4000	Norubinha Coal and Iron, Bolivia†	4 4 0.	—	—	—	—	—	—				
5000	New Quebrada, c. Colombia†	1 0 0.	—	—	—	—	—	—				
5000	New Rosario, s. Mexico	1 0 0.	—	—	1 1 1 1/2 1 1/2	—	—	—				
50000	Pacific, g. s. Nevada and California*	10 0 0.	—	—	8 1/2 8 1/2 9	—	—	—				
50000	Pestarens United, g. Italy†	3 0 0.	—	—	—	—	—	—				
50000	Rosita Grande, g. Brazil†	0 14 0.	—	—	—	—	—	—				
50000	Sao Vicente, Brazil†	0 6 0.	—	—	—	—	—	—				
50000	St. Josephberg, c. t. Rhensish Prussia*	10 0 0.	—	—	—	—	—	—				
50000	Taquari, g. Brazil†	0 12 0.	—	—	—	—	—	—				
50000	Tulahoma, t. Tennessee†	2 0 0.	—	—	2 1/2 2 1/2 2 1/2	—	—	—				
5174	United Mexican, s. Mexico†	28 5 2	3	2 1/2 2 1/2	—	—	—	—				
50000	Val Antigua, g. Italy*	1 12 6.	—	—	—	—	—	—				
50000	Val Sannam, s. c. t. Italy†	8 0 0.	—	—	—	—	—	—				
50000	Worthing, c. South Australia†	1 0 0.	—	—	—	—	—	—				
50000	Yorke Peninsula, South Australia	1 0 0.	—	—	—	—	—	—				
50000	Yudanamutana, c. South Australia†	3 0 0.	—	—	—	—	—	—				
NON-DIVIDEND MINES.												
Shares.	Mines.	Paid.	Last Pr.	Bus.	divs.	Per share.	Last paid.					
5000	Ashton, t. Carnarvonshire	5 0 0.	—	—	8 1/2 7 1/2	—	—	—				
5000	Cas Gwynn, t. Cardiganshire†	2 0 0.	—	—	2 1/2 2 1/2	—	—	—				
5000	Carn Breu, c. t. Illogan†	30 0 0.	18	17								